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ADDRESS.

THE HIGHER THE ORDER OF RAILWAY SURGERY, THE GREATER THE PROTECTION TO THE EMPLOYE, THE PASSENGER AND THE COMPANY.

The President's Address, Delivered before the Fifth Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Oct. 5, 6 and 7, 1898.

BY R. HARVEY REED, M.D.

Superintendent and Surgeon-in-charge, Wyoming General Hospital; President Wyoming State Medical Society; Assistant Surgeon Union Pacific Railroad.

ROCK SPRINGS, WYO.

The deaths resulting from the slaughter and illness in the Spanish-American war, which has scarcely closed, saying nothing of the wounded and sick who will recover from their misfortunes, have enlisted the sympathy of every citizen of this, the greatest nation on the earth. Those who participated in this brief but decisive war would scarcely number more than 400,000 people, including the armies of both nations.

It is true, if we can place reliance in the reports made from time to time, that thousands have been killed and wounded, and tens of thousands have been ill from disease. Our papers, from the smallest sheet on the frontier to the greatest daily periodicals of the world, published in the metropolis of our nation, were filled from day to day with harassing accounts and heart-rending stories of the suffering and loss of life, the result of this short and most extraordinary combat. This great war was precipitated quite unexpectedly to the majority of the people of the country, whose minds at that time were occupied with business transactions, but notwithstanding the thirty years of peace, our plowshares were turned into swords and our pruning-hooks into spears, and in the short space of four months war had been declared and all preparations for raising an army of over 200,000 men had been accomplished, and provisions made for the caring of their sick and wounded, and a proud, haughty enemy conquered.

If the reports of the daily press are to be relied upon, one is led to believe that the most complete preparations for the care of the sick and wounded have not been invariably at hand. Yet it seems strange that an educated people like those of the United States, and especially those who guide the pencil of the press, would expect in so short a time, with such circumscribed laws, to prepare a corps of surgeons who could show to the world the highest order of military surgery. Nevertheless, under these adverse circumstances, we believe, so far as our surgeons were concerned, and the facilities they had granted them by the laws of this country, they distinguished themselves as *well* as any other nation could have done in the short space of time allotted them under existing statutes.

In this connection, permit me to quote from one whose opinions are honored and respected where surgery is known, one who left a most prosperous professional practice, and for the love of his country and his profession, turned his back on his home and its comforts, and went to the very front, where he had an opportunity to witness the fiercest of the fight, and the most dire ravages of disease. I refer to Lieut.-Col. N. Senn, U. S. V., Chief of the Operating Staff with the Army in the Field, who, in a paper published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Sept. 17, 1898, on page 655, says:

> The executive power of the Surgeon-General is indeed an exceedingly limited one. Everything of importance has to pass through the hands and by the sanction of the Secretary of War. The Secretary of War is a busy man in keeping track of what is going on in his department *outside* of the Surgeon General's office. On the other hand, the medical department *depends entirely* on the quartermaster's department in forwarding and distributing medical supplies. No wonder that many collisions between these departments occurred during the present war. Our experience has taught us in the most forcible way that the medical department should have charge of everything pertaining to the sick and wounded, in order to accomplish that for which it is intended.
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> The Secretary of War is not supposed to have any knowledge of medicine or surgery, or other wants of the sick and wounded, and yet the Surgeon-General is powerless in the execution of *his orders* without his co-operation. If the forwarding and distribution of the medical and hospital supplies were directly under the control and management of the medical department we would have heard *less of well-founded complaints* of the scarcity of medicine and hospital supplies. To make a department strong and efficient, it must be independent.

I do not believe there is a member of the medical profession here today, and I might say I do not believe there is any member of the medical profession, who realizes the actual condition of the medical department of the United States Army, who can gainsay the remarks just quoted from Lieut.-Colonel Senn, and if these remarks are true in great armies, where their sole object is that of maiming and killing each other, then it certainly must hold true in any line of business where accidents may occur, in which the surgeon must be relied upon in times of emergencies. Railroads, so far as their management is concerned, are very much the same as the army. It is just as essential to have the so-called red-tape in the successful management of railroads, as it is for that of a large body of troops on the field of battle. When we consider that the railroads of this country employ in round numbers about one million men, who, as a rule, are the very cream of the physical strength of our nation, and who are exposed daily to the dangers of a large variety of casualties, which may snuff out their life in the twinkling of an eye or maim one, the very picture of physical health, for life, we begin to realize the importance of the very highest order of surgery for the protection of the employes and passengers, not on the basis of humanity

alone, but in the interest of the company which employs them. From the statistics of the railroads of the United States for 1897, compiled by the Interstate Commerce Commission, we find that for the year ending June 30, 1897, there were 43,168 casualties, 6437 of which resulted in death and 36,731 in injuries of varying characters.

In the recent war we learned the lesson that inadequate care, the result of inadequate laws, caused an *increase* in the suffering, simply because the medical department, instead of being independent and held responsible to the War Department for its acts, was dependent upon *non-professional* men for practically every need. Men who knew nothing of either medicine or surgery, of the laying out of camps, of the equipment of hospitals, of the furnishing of medical supplies, were the men whom the most skilled surgeons of this country were obliged to look to for orders for the care of the sick and wounded. I have maintained for years that the same holds good in railway surgery, and trust you will pardon me for quoting from a paper I read before the New York Medico-Legal Society, at the request of its secretary, June 14, 1893, in which I made the following statement:

It is to be regretted that a large majority of the railroad companies, and especially so on our eastern roads, leave the selection of surgeons to non-professional men; men who are not able to judge of the scientific qualifications of surgeons, but who, nevertheless, employ them to take these responsible positions, which often mean thousands of dollars to the company, without taking the precaution to ascertain their ability in advance, but usually appoint them through *friendship* rather than merit.

The idea of placing a surgeon under a non-professional man and expecting to get the best service out of him, is just as reasonable as it is to place over an attorney, who is trying a case before a jury, a judge, who knows nothing of law, and who was picked from the laity, and who might be a good gardener, a good horseman, or a fine singer, but who knows as little of the law and the conducting of a suit on trial as the "wharf rat" does of theology.

This, we regret to say, has been the status of railway surgery for years, and to a certain extent is the policy adopted by quite a number of railway companies today, which either place the surgical department under the control of the general manager or general superintendent, or, in some instances, the claim agent of the company. But notwithstanding all this, I have always had faith enough in humanity to believe that the time is coming when these errors will be righted, for I am sure the thinking, reasonable man, when it is once explained, will see how utterly impossible it is to get the best service out of a surgeon by placing him under the control of one who knows nothing about his business and has not the least practical appreciation of the services he has to perform. In comparison it would be just as reasonable to place a surgeon at the head of the legal department and compel the corps of "Company Council" to abide by his judgment and decisions whether right or wrong, as it is to place the claim agent at the head of the surgical department, who must listen to his dictations in reference to the surgical service of the company they represent. Or again, it would be just as reasonable to place a surgeon at the head of the operating department of the railway company and expect him to manage that with success, simply because he was a good surgeon, as it would be to place a general superintendent over the surgical department and expect to get the best service possible from his surgical staff.

Young as I am, I am thankful that I have lived to see the majority of the leading and progressive railroads of this country make rapid strides toward the higher order of railway surgery, and I have every reason to believe they did it because it was a protection to the employe, the passenger and the company. We can not expect railway surgery to spring out of chaos, and like a mushroom, attain its full size and strength in a single night, any more than we can expect any other department of the railroad to develop to its highest point at a single bound. It has taken years for our railroads to develop from the wooden rail over which a few clumsy, uncomfortable, unsightly coaches were hauled by oxen, mules or horses, into the magnificent palaces drawn by engines of inconceivable power over tracks of the smoothest steel, at almost incomprehensible speed, which have lashed our continent from north to south and east to west, abolishing time and making travel a comfort, yea, even a luxury, rather than a drudgery. Likewise, it has taken time for the development of the surgical department, which most naturally has been looked upon by the operating department as a *necessary evil* of which the less they had to do with it, the better. It is very easy for the writer to recall numerous conversations he had with different railroad operators relative to the advancement of railway surgery. It was amusing to hear some of them advance what they considered one of their strongest arguments, that the equipment of a railroad for the care of emergencies was prima facie evidence that it was in a condition in which accidents were most liable to occur and for that reason its operators had prepared for something they expected and thus would deter the public from traveling over their line. This, however, I am glad to say has gradually been eradicated from the minds of most of our progressive railway operators, for it has been demonstrated over and over again that the very best railroads, managed by officers of the highest skill and experience, are bound to meet with accidents. Notwithstanding the automatic coupler, the air brake, and the numerous minor improvements, we have had during the year 1897, as has already been mentioned, a whole army of more than forty-three regiments of 1000 men each injured in a single year, out of which more than six regiments of 1000 men each were killed outright, and more than thirty-six regiments of 1000 men each were the victims of injuries of varying severity. From these figures it would appear that it is important, notwithstanding the advancement of the railway management, that they be prepared for the inevitable, and by this I mean, that so long as railroads exist, emergencies are bound to arise and must be taken care of.

I believe it was on August 28, 1830, that the first railroad accident occurred, which consisted in an injury to the thumb of one Peter Cooper, who was a master mechanic as well as an engineer, and who not only gained the distinction of having built the first railroad engine in America, and drawn the first passenger car in the world, but was the first railway employe to meet with an accident requiring surgical care. From that time to this, railway surgery has been gradually developing, and notwithstanding it has had many backsets, it today stands the peer of any other department of surgery in the world. There was, and we regret to say still continues, with some few roads, a time when a railroad surgeon, as an employe of the company, was unknown. A physician was simply called when an accident occurred, whoever was nearest, and the case was turned over to him without regard to future consideration, and when his bill came in it was paid, but oftentimes with deep-seated remorse on the part of the company. By and by, railway companies began to find out that this was an expensive method of operating that department of their road, for not only exorbitant bills were charged for incompetent services, for trivial accidents, by physicians thus employed, but exorbitant demands were made against the company for damages, fre-

quently the result of incompetent surgical services rendered the employe or passenger, who, by the railroad company had been placed in the hands of an unskilled, inexperienced, and consequently, incompetent physician, for treatment. This, in time, led to the appointment of "company surgeons," who, in the early history of railway surgery, were under the direct control and guidance of superintendents or managers. This was an important improvement over the former, but far from attaining the highest order of railway surgery.

Less than twenty years ago the first association of railway surgeons was organized, which had for its object the advancement and improvement of railway surgery. At that time such an office as Chief Surgeon was practically an "unknown quantity," and the now familiar "hospital system" was in its swaddling clothes, and it is less than ten years since the following resolution was offered by a prominent railway surgeon of Ohio, at a meeting of the Association of the Bee Line Surgeons, held at Cleveland:

> In our opinion the surgical service of the Bee Line Railroad will be much improved by sending to well established hospitals the injured employes, there to be treated by the regularly appointed surgeons of the road.

The question of the importance of railway surgery has been agitated by local, district and national associations, which have met from year to year and discussed the good and the bad methods of treatment of emergencies arising from railway accidents. The question of railroads without a surgical corps has been thoroughly considered, and the result weighed in the balance of economy. Heterogeneous systems of different methods where company surgeons were appointed by the superintendent or manager were tried by the different railway companies of the country, all of which have been carefully scrutinized and their results in dollars and cents to the stockholders carefully compared, whilst the hospital system, which has been adopted by a large number of the greatest railway systems of the world, has been held up before the piercing eyes of the active railway surgeon, as well as the advancing and observing manager or superintendent, and its merits thoroughly investigated.

During all these years, it has been the aim of the conscientious, active and experienced railway surgeon to ascertain from practical experience that method which will give the best service to the employe, the passenger and the company, for experience has taught him that these three factors were essential elements that cut a large financial figure, annually, and reduced the exchequer of every railway company. They realized that railway companies were not organized for philanthropic purposes, but on the contrary, were organized on purely business principles, and looked forward to a given amount of returns on a given investment with the least amount of expense and liabilities. From this standpoint, it is a logical sequence that a dollar saved is equal to a dollar earned, and while it has been found impossible to avoid the occurrence of accidents, the next best thing was to provide a method of caring for those who were injured by these accidents, not only in the most humane manner, but at the least expense and loss of time and permanent injury to the parties afflicted.

To accomplish this, I believe it is now beyond question and has been fully demonstrated by the leading and progressive railroads of this land, a majority, if not all of which, have hearkened to the advice of their railway surgeons, that in order to attain the highest order of professional service, it was not only necessary to have an independent department, under the management of a competent chief surgeon, but in addition a well-organized and economically conducted hospital system that is prepared at all times to care for any class of injuries or illness that may occur in the operating of a railway system, with the least loss of time, the least permanent injury and the least expense, and the least suffering to the sick and wounded.

It seems a strange, but a happy coincidence, that at the close of the nineteenth century, not only the leading railway surgeons, but also the leading military surgeons, have, from experience, arrived at the same conclusion: that to make a department strong and efficient it must be independent.

ORIGINAL ARTICLES.

TRAUMATIC INJURY OF PERIPHERAL NERVES.

Read before the Fifth Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Oct. 5-7, 1898.

BY C. S. FAIRCHILD, M.D.

SURGEON C. & N. W. R'Y.
CLINTON, IOWA.

Peripheral nerve injuries constitute a very interesting chapter in railroad surgery, on account of the uncertainty of the remote effects on the nerves themselves and on the organs and parts supplied by them. As implied in the above statement, peripheral nerve injuries may be considered under two heads: 1, the effects of injury on the nerve itself; 2, the effects on the tissues supplied by the nerve. In fact, however, the results, so far as the nerve itself is concerned, are so closely associated with the effects secondarily induced in other tissues supplied by it that they can not be considered wholly separate, and therefore can be more properly stated as the primary and secondary results of nerve injuries. The more recent advancements in neurophysiology and neuropathology have served to clear up—from a scientific standpoint at least—much that in the recent past was obscure, and have put us in possession of much valuable practical knowledge of what may be expected in the presence of a certain state of facts.

Every variety of peripheral nerve injury may be expected in the practice of railway surgery, but they do not materially differ from such injuries occurring in general surgical practice, except that the injuries themselves are more severely crushing in their nature. The pathologic changes which take place in an injured nerve are essentially the same in all cases, but the details will differ in certain respects. If a nerve is separated from its trophic center by division, the fiber below the point of section undergoes degeneration and is finally converted into a fibrous cord. Trophic changes in the muscles supplied by the nerve soon follow. These practical facts are well understood, and the surgeon promptly avails himself of them in endeavoring to reunite the divided ends and bring about as speedily as possibly a union and a restoration of function.

According to Strobe a down growth takes place from the axis cylinder of the central end, and the distal or peripheral end, which rapidly undergoes degeneration after division, is regenerated—at least to a certain degree—hence, if the nerve is united imme-

diately, it is restored sooner or later with a more or less complete restoration of function. If the nerve can not be united on account of extensive destruction, the down growth will take place to the extent of forming a bulbous growth at the central end of the nerve, as is so well illustrated in the division of nerves in amputations, and which so frequently cause great suffering to the patient. It is important, then, to remember in an amputation that when a nerve is divided, a bulbous extremity is formed in every case as a down growth from the axis cylinder, and that in the bulb new nerve fibers grow from the old nerves, and that these are joined by newly formed connective tissue fibers. The remote difficulties which arise from this conservative effort influence our course in relation to the management of the several nerves, particularly in their relation to the scar. Dr. Senn has suggested a flap formation in addition to the shortening of the nerve, as lessening the liability to bulbous development, particularly in patients who suffer from amputative neuromas when resection becomes necessary.

Omitting more than a passing notice of the facts in relation to divided nerves and amputative neuromas, we shall devote this paper chiefly to the consideration of injuries of nerves which do not involve their entire division.

1. Crushing injuries received by employes or others, in machinery or while engaged in various employments, involving the nerve in its continuity. In this division may be found two classes of cases: *a*, cases in which the nerve is seriously injured and is involved in the scar arising from the healing of the soft parts, or in the callus from the union of a fractured bone: *b*, crushing of soft parts in which the nerve escapes being caught in the scar but is seriously contused.

2. Strains and contusions received by employes and others, in wrecks or otherwise, which do not involve any structural change or serious lesion in the nerve and only for a short time interfere with its functions.

3. Injuries in which the peripheral end of the nerve is caught in the scar, incident to the healing of the soft parts.

Clinically, it is not always possible at first to determine just what the condition of the nerve is. The laceration of soft parts may involve also a laceration of the nerve, and in healing, the lacerated nerve may be involved in the healing of other soft parts, and a subsequent search for the nerve may show that it is difficult to distinguish the nerve from other tissues in the scar formation, and it may be necessary to seek for the nerve at a point above the seat of injury and trace it down with considerable difficulty. In other cases the soft parts may be extensively lacerated, and the nerve escape more than a severe contusion, which, for a considerable period of time suspends its conducting activity.

In the two classes of injuries referred to the symptoms will, for a time, be essentially the same, viz., paralysis. In these cases, however, if the arm is the part injured, and the laceration of tissues is so serious that the part is kept in a state of rest, the full disability may not be discovered until the healing process is well advanced, and then it is found that voluntary movement in certain muscles is impossible. Something can be done in determining the probable condition of the nerve by ascertaining if the scar is adherent to the bone or deep enough to include the nerve, also if the reaction of degeneration is present in the muscles supplied by the nerve. If the nerve is torn across, or is so extensively lacerated and involved in the scar as to practically separate the proximal from the distal end, in the course of six weeks trophic changes will take place to such an extent that when the distal portion of the nerve is stimulated by the interrupted current the muscles will not respond. If, however, the nerve is only contused, trophic changes are less marked, and a more or less ready response to electric stimulation is found to exist.

Two patients, illustrating each of the above conditions, have come under my care. The first was a case of extensive laceration of the soft parts above the elbow. After the healing of the arm had progressed sufficiently to permit of motion, it was found that paralysis of the musculospiral nerve existed, as shown by the inability of the patient to supinate the forearm and to extend the hand. The reaction of degeneration, to a moderate degree, existed. As soon as healing was complete, an operation was made to discover the condition of the nerve. The nerve could not be recognized in the scar and it was sought for at a point above the injury. On tracing the nerve down it was found so intimately associated with scar tissue that only with the greatest difficulty could it be followed. A part of the nerve to the extent of about two inches was represented only by a connective tissue cord. This portion was resected, the nerve stretched from above and below and sutured. The arm was dressed in a flexed position, to relieve tension as far as possible. But, as was expected, the reproduction of scar tissue was so extensive that the former condition of the nerve and its surroundings were reproduced and the same disability continued. I doubt if nerve implantation would have succeeded in this case, for it has been my experience that any operation for the liberation of nerves in extensive scars has been attended by failure, or at least with very unsatisfactory results, on account of the reformation of the same dense fibrous tissue, with a recurrence of the former condition. It is quite different from the union and regeneration of a divided nerve in tissue where we have only the scar tissue incident to the healing of an incised wound, or where the scar is not so extensive as to forbid the anchoring of the nerve in normal tissue just outside the scar, so as to protect it from the multitudinous formations of new connected tissue.

In a second instance a man suffered an extensive laceration of the soft parts of the arm involving several points between the elbow and shoulder. As soon as the arm healed sufficiently to permit of voluntary movement—or at the end of the fifth week—wrist drop and an inability to supinate the forearm were found to exist. An examination showed an extensive scar over the musculospiral nerve, but the scar was not adherent to the bone, nor did it appear to be deep enough to involve the nerve. An electric examination showed that the muscles supplied by this nerve reacted well, and that there was but little atrophy of the muscles. I, therefore, became convinced that the nerve had suffered a contusion and was not lacerated or involved in the scar. I gave a rather favorable prognosis and continued the use of the interrupted current, with the result of a complete restoration of the functions of the arm in about three months.

In the second class are found injuries to nerves from strains and contusions in which there is no open

wound. These cases are quite common, and are often seen in litigation. They are often seen in association with general morbid nervous states as the primary condition. The pain is frequently exaggerated and may lead to a suspicion of malingering. A careful examination will generally reveal the facts. If the pain and tenderness follow definitely the anatomic distribution of a nerve, it may safely be assumed that the symptoms are genuine, for it is not often that the patient is sufficiently familiar with anatomy to successfully simulate pain that is confined to the nerve itself or referred, as it often is, to the nerve ends.

I have had cases under my care where a genuine nerve pain from an injury has continued for a few weeks and has led to morbid nervous states after the neuritis—which is no doubt the pathology—had subsided, and I am inclined to think these patients do not always receive proper consideration and treatment. Absolute rest is the essential treatment, and if promptly and persistently carried out, will save patients and corporations a great deal of trouble. But, unfortunately, neither the patient nor his doctor always fully appreciate the condition, and the best time for the treatment of these cases is allowed to pass unimproved.

The third class of cases includes compression of the peripheral nerves in scar tissue without the nerve itself being primarily involved in the wound, or not involved to such an extent as to destroy its transmitting functions, and no symptoms appear until some time after the wound has completely healed, when the evidences of an irritation lesion appear from the contraction of the scar tissue. If a nerve in its course is caught in the scar, the first symptoms are burning sensation, pain and numbness, followed by muscular spasms occurring at intervals, and at a somewhat later period, by anesthesia and motor paralysis below the lesion, due to interference with transmission of sensation and motion. The severity of these symptoms will depend upon the rapidity of the developing compression. If the compression is slow, the nerve accommodates itself to the condition, and the more severe symptoms are much delayed in appearing. If the scar compression occurs near the peripheral end of a nerve, the interference with transmission is less noticeable and the painful impressions are the first symptoms that attract the notice of the patient.

A case of this kind has recently come under my care. A bridge carpenter suffered an injury to his right hand, due to his hand being caught between two planks. The skin was broken on the palmar surface at the junction of the thumb with the hand and some muscular tissue forced out. The wound healed promptly. About five weeks later, after he had returned to work, he began to experience severe pain in the thumb, which extended up the forearm; this was soon followed by a twitching movement of the thumb and hand. This increased in severity, and he was obliged to discontinue work. After a little delay I cut down on the nerves supplying the palmar surface of the thumb and released them from the very abundant scar tissue. The wound quickly healed. But in about five weeks the old symptoms returned and increased in severity. Thinking that my operation had not been thorough enough I repeated the operation of liberating the nerves and removed all the scar tissue. The relief was complete for about six weeks, when the old symptoms of pain and muscular twitching returned. As nothing could be expected from medical treatment, a third operation was made, which consisted in again removing the scar tissue and with it an inch of the two principal nerves supplying the thumb. This operation was followed by sensory paralysis of the palmar surface of the thumb and a complete relief of the painful symptoms. We now entertained the hope of a cure, save the anesthesia. In this, however, we were disappointed, for in about six weeks the pain again returned, followed by extremely painful contractions of the adductor and flexor muscles, which would violently flex the thumb closely down into the palm of the hand. These spasms would frequently occur every day and sometimes twice a day, lasting from fifteen minutes to an hour, and were attended by intense pain which would extend to the middle of the forearm. Associated with these spasms was a vasomotor paralysis, shown by the dilated blood-vessels and redness of the skin. This condition would disappear on the relaxation of the muscles and the return of the thumb to its natural position.

As the pain and spasms increased in severity, a fourth operation was made, and, at the suggestion of Dr. W. J. Mayo, all the tissues, including the muscle tendons, nerves and blood-vessels, were divided down to the metacarpal bone, circumscribing the thumb except on the dorsal surface at a point three-quarters of an inch from the original injury scar. Very profuse hemorrhage followed, but in the large wound inflicted the arteries were easily secured by catgut ligatures. The wound was united simply by skin sutures and a gauze drain introduced. The painful symptoms again disappeared and remained absent for so long a time that I concluded at last relief had been obtained, and just as I was in the act of writing Dr. Mayo, congratulating him on the success of his suggestion, the man appeared in my office to tell me that all the old symptoms had reappeared in an aggravated degree; that the pain was more severe than ever and the spasms more intense; in fact, the thumb was almost constantly drawn tightly into the palm of the hand. For short periods the spasms would relax and the thumb be restored to its proper relations. As a result of this fourth operation, the retraction of the soft parts and the maintaining of the thumb in an extended position, allowed some period of time to elapse before the parts were united by the formation of new tissue elements. As soon, however, as this had been accomplished and condensation had been reached, the pain and spasms returned. Before the painful symptoms reappeared after the last operation, the power to flex the thumb had returned, and this fact led us to hope for permanent results. After the pain returned the hyperemic condition of the skin from vasomotor paralysis still bore a constant relation to the periods of muscular spasms.

The condition demanded further efforts, and the thumb was now amputated below the head of the metacarpal bone. Skin flaps were only made. The entire length of the metacarpal was cleared of soft parts to its carpal junction, care being taken not to injure its median nerve, leaving nothing but periosteum and skin to cover it. The wound had scarcely healed when the most violent symptoms appeared; pain of the most violent character developed in that part of the hand supplied by the median nerve. The fingers supplied by this nerve were drawn into the palm of the hand for hours at a time. Sometimes

vasomotor spasms existed and sometimes vasomotor paralysis. The pain would extend to the shoulder, and the hand was in constant motion. At times the heart's action would be seriously disturbed; it would become irregular and intermittent. Gastric crises would occur, and, without nausea, the contents of the organ would be expelled. The periods of cardiac disturbance would be of short duration, but the gastric trouble would last for a week, no food being kept in the stomach, seriously interfering with nutrition and confining the man to his bed for a week at a time. During this time one-half grain morphin hypodermically was necessary, and to support the heart's action aromatic spirits of ammonia were freely used. In about three weeks, intervals of relief would come, at first for one day only; gradually these periods became longer, extending over two days, then several days. The heart improved, food could be retained, and strength was regained. At the end of three months recovery seemed to be well advanced. He exercised the hand a little in light work, but was quickly admonished by the return of some of the old symptoms, and now slight use of the hand, any exhausting influence or exposure to cold will cost him an hour of acute suffering. All the rhythmic motion of the wrist has disappeared, but there is an almost constant pain of slight degree present. The hand is slowly improving, but it is altogether extremely discouraging and causes considerable despondency at times.

The pathology of the case seems clear. A slowly developing neuritis followed the irritation lesion in the compressed nerve, and although the nerves were repeatedly freed from the scar formations, yet before the final and permanent release had been accomplished the degenerative process had extended up the nerve to a point which our operations did not reach. The fifth operation was made fifteen months after the injury. One thing which I especially noticed at each operation was the remarkably large amount of scar tissue which formed, and its extreme density. This appeared to indicate a peculiar trophic influence exercised by the nerves. This is supported by the fact of the frequent vasomotor disturbances witnessed. The additional fact of rhythmic movement in the wrist indicated that the ascending degeneration had reached the spinal cord and affected the motor cells in the anterior horas of grey matter to a certain degree. To what extent the degenerative change has involved the cord is an interesting question. The moderate atrophic change in the muscles of the arm affords a hope that the involvement is not extensive, and we find some comfort in the fact that the movements above referred to have ceased.

The fact that, following the early operations the symptoms disappeared, shows that extreme changes had not occurred, and, while the nerve was probably not free from some degenerative change, yet I think it is safe to assume that had the more radical operative procedures which were undertaken later been adopted at first, a much better result would have been obtained.

We have been slow in recommending any additional operative procedure on the ground that further disturbance would seriously compromise the nutrition of the nerve, which is already in a very precarious state. Our present hope is that by rest and general restorative measures the moderate improvement already realized may continue, although I have to confess that at the age of our patient—59 years—with a distinct tendency to nerve degeneration, the prospect is not altogether brilliant.

DISCUSSION.

Dr. FRED J. HODGES of Ashland, Wis.—The Academy is to be congratulated in having a paper of this character presented before it. It is a departure from the stereotyped form of papers upon surgery of the peripheral nerves, and brings up a highly interesting case. In speaking of the injuries to which the nerves are susceptible, I would like to include in the Doctor's classification the incarceration of the nerve within the lines of fracture, not simply in the callus. But there are a certain number of cases of fracture in which there is developed, almost immediately, an intensely painful condition, and careful manipulation will discover that the nerve is incarcerated within the line of fracture. Failure to interpret this condition has led to amputation. The description of Dr. Fairchild's case, which he has given us fully and clearly, recalls to my mind one or two cases of the same nature. The point of similarity was that it was a lacerated and extensive wound, caused by the application of a very considerable degree of force. One case was a multiple fracture of the forearm, which was caused by a blow from a log. After the healing of the fracture, there was considerable pain, particularly over the musculospiral area. The arm was examined by a number of physicians, and finally was amputated by Dr. Reinhart of Ashland, on the advice of Professor Herdman of Ann Arbor, against his own judgment in the matter, however, so far as relief of the condition was concerned. Later the man came to Dr. Senn, who dissected down upon the stumps of the nerves in the axilla and removed them. A few weeks ago, we cut down again into the axilla and traced the nerves to their origin in the plexus, and divided them close to the plexus. There is now the same intolerable pain that there was at the time the bone first healed, and it is still referred to the palm of the hand and the wrist. A possible explanation of these cases may be this: The injury tears the more resisting nerve, not at the point at which the bone or the muscles give way, but from its insertion or origin in the plexus, and perhaps all the axis cylinders are destroyed. Some of the cylinders may recover, others produce a neuromatous condition.

In another case, which required amputation at the lower part of the arm, in endeavoring to pull down the nerves to cut them short in the stump, eight or nine inches of the proximal ends of the nerves were easily pulled out of the sheaths, showing that the injury which so smoothly divided the soft parts had also divided the nerve well up in the vicinity of the plexus. In the description of the case I was forcibly reminded of one which Hughlings Jackson mentioned in his Lumleian lectures of 1890. There he describes what he calls convulsive seizures, and locates them in three levels in the cortex—the first and second in the subcortical areas and a third in the cord. His explanation of the case would be, according to this plan, a convulsive seizure of the third or lower level, and whether or not it could be explained on the ground of a peripheral reflex theory, or whether it was, as the Doctor has suggested, simply a degeneration extending up the nerve until it reached those centers, it is impossible to say without examining the cord. These cases are becoming more and more frequent, and in spite of the very best service that can be rendered them, they continue as a monument to what we do not know about neurology.

Dr. W. J. MAYO of Rochester, Minn.—I feel very much interested in Dr. Fairchild's paper. It brings to our minds, as Dr. Hodges has said, the fact that the surgery of the nervous system, taken as a whole, is the most unsatisfactory of all the different departments of operative surgery. I have seen a few cases such as the Doctor described in the first part of the paper, namely, the convulsive type, and very little benefit resulted from treatment. My brother, Dr. C. H. Mayo, has resected and reunited portions of the musculospiral nerve in three cases. These cases were the result of fracture of the humerus; power came on slowly, sensation returned promptly and remained. In the cases of direct incision, which I recall, in which the nerves were sutured at once, the results have been fairly good. In one case wherein the median and ulnar nerves were completely cut across, the results were excellent after primary suture.

I have seen two cases of typic paralysis agitans following injuries of the upper extremity—one a blow just below the shoulder, and the other a wound in the hand. The case the Doctor describes at some length is an interesting one. It probably would not come under the head of paralysis agitans, although the convulsive movements may have been the same as those described by Hughlings Jackson. I recall another case in which the great sciatic was divided. In this instance there was some return of sensation three months after secondary suture, but not much motion.

I recall a number of cases in which amputation neuromata developed, and in which operation was made not only once, but several times. I know of but one instance where resection of the stump was followed by other than temporary relief, and if the patients are watched a sufficient length of time, this will usually be found true. One case we operated upon four times; the last time up to the cord, and the result was only temporarily beneficial. In most of these cases we must consider that there is an ascending neuritis, and if we bear in mind that every nerve-fiber has its origin in the central nervous system, and that each axis has a direct continuation from its origin to its point of supply, the particular fiber by the ascending neuritis may be affected clear to its origin. In this way we can explain the reason for such a large percentage of failures following operations on the nerves. In the cases where we have signs of degeneration of the nerve-fibers, the successes are small indeed.

Dr. W. W. GRANT of Denver.—This paper is certainly worthy of serious consideration, for several reasons. A simple uncomplicated case in surgery requires little at our hands; but cases of the kind reported are exceptionally complex; they are difficult to cure, and hence are always worthy of serious consideration, not only in showing what we do not know, but in stimulating us to try and improve in our methods of treatment. There is no class of cases more interesting than those of peripheral nerve injuries in their after effects. One of the significant things in the cases reported by Dr. Fairchild, is the absolute failure of the surgical methods employed to cure them. And one other matter which seems to me worthy of consideration is that the disease has been regarded entirely as local in its pathology and has been treated locally. Are there not in some of these inveterate cases constitutional conditions preceding the injury—conditions which materially influence their character and their subsequent progress. Some of them are syphilitic; some of them may be tuberculous. These constitutional vices interfere very materially with the success of operative measures, and while I do not say this phase of the subject was not fully considered by the author of the paper, yet it has not been alluded to sufficiently to make a complete history of the cases. The cases reported by Dr. Fairchild are so instructive in themselves that, even as they are, the Doctor deserves very great credit for the able manner in which he has presented them. I would simply suggest that constitutional measures be added to the local in the treatment of these cases, and if this had been done in the cases reported, different results might have been obtained.

Dr. R. HARVEY REED of Rock Springs, Wyo.—I was very much interested in Dr. Fairchild's paper. It is an excellent contribution to this subject. Indeed, it is excellent in more ways than one. It is excellent because it shows the persistency with which the Doctor has followed out a certain injury with the object of giving relief; and it is interesting from the fact that he did not obtain relief after giving the patient the very best operative treatment that is known at the present day. Whether or not he could have pursued a better course remains a mystery, but I do believe, as has been said by Dr. Grant, that many cases come to us with constitutional contamination, and we can not obtain the same results from the same operations in those cases, or in the same class of injuries, that we do in others. This may have been true in the case of Dr. Fairchild. Of late years I have made it a habit, in cases where I have occasion to sever a nerve, of cutting the proximal end V-shape, so that the neurolemma would cover the nerve fibers and give it plenty of flap, as it were, and I find that I do not have such trouble with neuromas as I had when I cut the nerve off at a right angle. I think, however, that in some of these cases we may obtain beneficial results by implantation. I have made a number of implantations of nerves after the Galbraith method, in which I have certainly obtained very satisfactory results. Where I am located at present we have a great many injuries to the nerves, and I have had occasion to make a great many implantations and nerve suturings. I find that there is a certain class of cases which behave just as the Doctor described, and which we believe to be tainted with syphilis, or due to some other constitutional condition with which we are not familiar at the time. Why it is, I have not well satisfied myself as yet, except where I can ascertain from treatment that they respond to syphilitic preparations. In this class of cases we derive no benefit from implantation.

I do not wish to take up further time, but I simply desire to thank the Doctor for presenting his interesting paper, which is of value to all of us, and I think worthy of our trip here. I am quite sure that I have been amply repaid for coming here and listening to it.

Dr. FAIRCHILD (closing the discussion)—I am very grateful to the Fellows of the Academy for the courteous manner in which they have received my contribution. There was no attempt on my part to deliver an exhaustive dissertation upon the subject, but merely to give you a suggestive paper. There were two points particularly that I was anxious to dwell upon, and one was the question of implantation or any operative procedure for the purpose of restoring the nerve when there was a large amount of scar tissue present. In many of these cases of railroad accidents to the arm or to other parts of the body, there is an extensive laceration of soft tissues, and when healing takes place the wound is filled in with a large amount of scar tissue. My experience has been that any operative treatment on nerves in these cases is followed by absolute failure. I do not remember any successful cases following operative interference. Where you have a nerve divided without the probability of extensive scar tissue forming, then you may get some results from union of the nerve.

Dr. GRANT—Have you operated in any of those cases after infliction of the injury?

Dr. FAIRCHILD—I have waited usually until the wound has healed, because I want to operate through clean tissues. But the reason, it seems to me, was not so much the condition of the nerve below the point of injury as it was the extensive development of scar tissue which followed the operation at the point where the union of the nerve was accomplished. If we cut down on a nerve and remove a considerable amount of scar tissue, join the nerve, and leave the nerve short, in a short time the scar tissue is reproduced, and the nerve is the same as before. If you make the operation where the soft parts have not been lacerated, and where the probability of getting a dense scar is not great, then you can get good results from suturing the nerve, or if the nerve can be drawn from outside the scar tissue to avoid proliferation.

The method of which Dr. Reed speaks, with reference to joining the nerves according to the Galbraith method, could not, I think, be adopted in a case of this kind. The case of injury to the musculospiral nerve, which recovered, was one where there was no serious injury inflicted to the nerve. The nerve had suffered contusion, and the electric stimulation showed the absence of the reaction of degeneration. The nerve below had not undergone extensive degenerative changes, and this patient got well. The case of the man that has been interesting to me and has given me a great deal of trouble, is a patient that does not suffer from any symptoms or indications of syphilitic infection. Indeed, there is no history of any syphilitic infection whatever. He is a man of simple habits; has lived in a small country village, and is entirely free, so far as the history shows, from syphilitic disease, and yet it may be possible. He has been under the treatment of iodid of potassium, but not in large doses. The case appeared to be one primarily of irritation of the ends of the nerve due to the contraction of the scar, or of catching of the nerves in the scar, and the degeneration traveled up the nerve to a point in the central nervous apparatus, as I have shown by the symptoms. I regret now that I did not make a more extensive operation at the beginning. If I had done so, I have no doubt I could have removed that part of the nerve which was involved in the scar entirely, and might have avoided much of the trouble the man has had. Yet, of course, this is uncertain.

There is one class of nerve injuries which I consider extremely important to railroad companies, because of their medicolegal relations, and that is injuries to nerve fibers that do not give rise to any positive symptoms. A short time since I had occasion to examine a case of that kind, and there are many opportunities of being deceived and imposed upon by persons who are not entitled to consideration. The Doctor is in great danger of being imposed upon by individuals who are not entitled to any consideration whatever. When a patient indicates the seat of pain, following definitely the distribution of nerves, I believe that the pain and symptoms he complains of are genuine. I do not think the average uninformed individual can point out the line which the nerve takes, or can map out the anatomic distribution of nerves. I had a case some time ago in which the individual outlined very definitely the course of the iliohypogastric nerve, and it was alleged that the man was a malingerer because no objective symptoms could be found. This man had not been under any instruction whatever, yet he followed definitely the course of this nerve. A man whom I examined yesterday indicated exactly the distribution of the sixth and seventh intercostal nerves of the right side. Just as soon as he got from one side to the other he claimed that he suffered no pain or tenderness. When a patient comes to me complaining of definite symptoms and follows the anatomic distribution of nerves, he has my confidence.

LEUCOPLAKIA.

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BY JOHN S. MARSHALL, M.D.
CHICAGO.

Leucoplakia is a term derived from the Greek λευκός, white, and πλάξ, a surface, literally white surface or whitening of the surface.

Definition.—Leucoplakia is a chronic superficial inflammation of the mucous membrane of the tongue, the palate, the cheeks, and the gums, and is characterized by the presence of pearly-white or bluish-white plaques or patches; in some cases small, in others covering the entire dorsum of the tongue, the cheeks from the angle of the mouth back to the fauces, the palate, or the entire buccal surface of the gums. Various terms, such as "leucoplakia linguæ," "leucoplakia buccalis," and "leucoplakia gingivæ," have been introduced to designate the location of the disease.

Nomenclature.—The disease is variously known as psoriasis linguæ, zona (herpes zoster), smoker's patch, leucoma, leucoplakia, ichthyosis, leucokeratosis, leucoplasia, leucoplaques, *plaques opalines* and superficial glossitis.

Varieties.—There are two forms of leucoplaques found in the human mouth; the milky opaline patches, (*plaques opalines*), represented by the mucous patches of condylomata of secondary syphilis, and the non-syphilitic, smooth white or pearly-white patches for which Schwimmer was the first to propose the term "leucoplakia," and Hutchinson "leucoma." The French writers generally refer to the disease as "psoriasis linguæ," or "*plaques opalines*." Hulke has described a warty variety of the disease, and applied to it the term "ichthyosis linguæ."

The *plaques opalines* or the mucous patches of secondary syphilis are grayish-white and curdy in appearance, resembling the superficial corrosion caused by the application of the nitrate of silver to the mucous membrane; while the plaques of leucoplakia are usually thin, shiny, bluish-white, white or pearly in color, sometimes having a yellowish tinge, but this, according to Butlin, is almost always due to the stain of tobacco or some other extraneous substance. These two varieties of leucoplaques may be further differentiated by the slight elevation of the syphilitic mucous patches, the secretion of a thin watery fluid, which is the potent source of contagion, and their tendency to become painful and to ulceration; while in leucoplakia the patches are not elevated above the surrounding tissue, except in the warty form (ichthyosis); they are not painful except in the advanced stage of the disease, no secretion is present, and ulceration is not developed until the disease has taken on a malignant form.

To the latter variety of leucoplaques—the true leucoma or leucoplakia—the essayist desires at this time to call your especial attention, for the following reasons: 1. It is an exceedingly dangerous affection, often being a forerunner of carcinoma. 2. It is a disease which, from its innocent appearance and the painless character of its early stages, is seldom recognized until the disease has progressed to a stage which renders a favorable prognosis exceedingly doubtful. 3. The disease seems, from personal observation, to be on the increase. 4. The dentist, from the very nature of his specialty, is in a position to see and recognize the disease in its earliest stages, and to warn the patient of his condition before it has progressed so far as to prove a menace to his life.

The disease in its earlier stages is much more likely to come under the notice of the observing dentist, or stomatologist, than of the surgeon or the laryngologist. As a rule, the patient does not consult a surgeon until the disease becomes troublesome; it may then have progressed so far as to give unmistakable evidences of degenerative changes of a malignant character. The dentist, therefore, should be so familiar with the characteristic features of the disease that he could recognize it at a glance; while it would be his duty to impress upon the patient the urgent necessity of consulting an oral specialist with the view of instituting measures calculated to arrest its further development, or for its complete extirpation.

Etiology.—The etiology of leucoplakia is by no means a settled question in oral pathology. Marked differences of opinion still exist among the very best pathologists as to the causative factors in the production of the affection. The earlier writers looked upon the disease as a local manifestation of psoriasis; others considered it due to certain other forms of skin disease, like zona (herpes zoster or hives) and lichen planus; many have looked upon the disease as a circumscribed chronic inflammation of the oral mucous membrane, due to syphilis, and still others have thought it a distinct affection produced by the local irritation induced by smoking or chewing tobacco. The inflammatory conditions of the oral mucous membrane and of the tongue resemble in certain respects the inflammatory conditions of the skin, while in others they present the characteristic features of mucous membrane in general. (Zeigler.)

Various inflammations and eruptive diseases of the skin have their counterpart in the mucous membranes, as for instance in erysipelas, which is an infectious inflammation usually manifested in the skin, but which often extends to the mucous membrane, especially of the mouth and nose, while upon the other hand, it may originate in some wound or inflammation of the mucous membrane, and later extend to and involve the skin, as occurred in a case recently seen in consultation, in which the disease developed as a complication of acute septicemia caused by an alveolar abscess, and which terminated fatally. Zona is another example in the same line. Although zona is an eruptive disease of the skin, it often attacks the mucous membrane of the lips and of the genital organs at the junction of the skin with the mucous membrane. Lichen planus, another skin affection, sometimes produces buccal lesions. These lesions have been described by Wilson, Hutchinson, Kaposi and Crocker, as whitish, thickened and uniformly elevated plaques upon the mucous surface, sometimes grayish white or resembling in color the places which have been cauterized with nitrate of silver. It is not strange, therefore, that the earlier writers should look upon leucoplakia as a manifestation of some of these forms of skin diseases, and particularly of psoriasis, which it somewhat closely simulates in its earlier stages.

Most modern writers look upon leucoplakia as an entirely distinct affection, having no association with psoriasis in any of its forms. Hyde says: "Psoriasis is not known to affect the mucous surfaces. The lesions of so-called psoriasis linguæ are those of leucoplakia buccalis, of smoker's patches, of syphilitic

diseases of the mouth, or of flat epithelioma." Nicholson, however, still holds to the old theory that leucoplakia is a local manifestation of a skin affection, and maintains that the disease is zona (herpes zoster) located in the mucous membrane. The peculiar burning sensation that accompanies the white patches located upon the lingual mucous membrane he considers as almost a pathognomonic sign, and calls attention to the fact that one or two herpetic vesicles may appear on the lower surface of the tongue during the course of the disease. Park is of the opinion that leucoplakia is often due to syphilis, and says: "These late and recurring lesions (syphilitic mucous patches) lose their moist character, become quite smooth, shiny, of a bluish-white color, and may mark the beginning of the condition known as leucokeratosis." Butlin, than whom there is no greater authority upon such matters, considers (Butlin's Diseases of the Tongue) smoker's patches, leucoplakia and ichthyosis as simply different manifestations of the same disease, namely, *chronic superficial glossitis*, which may have its origin in several forms of irritation, both chemic and mechanic, and which may act singly or combined.

Predisposing causes.—Butlin agrees with Debove in the statement that there is in most patients some condition which predisposes to the disease. He says: "I suspect that the mucous membrane of the tongue in leucomatous subjects is from the first less thick and stable, and more easily irritated than in the majority of persons. As some persons are known to have irritable and delicate skins, easily inflamed and prone to eruptions, and as some of those persons develop affections of the skin which are very chronic and difficult to heal, so I believe other people have tongues whose mucous membrane is abnormally delicate, prone to chronic inflammation, and difficult to cure when the disease has been excited." It has been suggested that chronic dyspepsia and the rheumatic and gouty diathesis might be a predisposing cause of the disease, but the evidence upon this point does not seem to be sufficiently strong to give any real weight to its consideration. Sajous says he has reason to think that gout is a cause of leucoplakia, for he has seen it in gouty women who did not smoke and were not syphilitic.

Age and sex are both very important predisposing causes of the disease. Leucoplakia has been rarely seen in persons under 20 years of age, even in boys addicted to smoking; while upon the other hand, it is rarely seen to commence in persons over 60 years of age. Women seem to be almost entirely exempt from the disease. Of the eight cases seen by the essayist, all were in men, and occurred between the ages of 40 and 74 years. Du Castel has reported a case in which the disease had existed since the age of 12 years in a man who had never used tobacco.

Exciting causes.—Among the most common exciting causes of leucoplakia may be mentioned the irritation produced by the habitual use of tobacco, particularly smoking; the later recurring lesions of the mucous membrane due to the secondary manifestations of syphilis—the mucous plaques—acting locally upon the tongue or the buccal mucous membrane; the frequent use of undiluted spiritous liquors; the drinking of very hot fluids, or eating of very hot or highly spiced foods; the mechanic irritation of teeth roughened by the process of caries, fractures, or the accumulation of salivary calculus; the irritation from dental plates which are rough, ill-fitting or made of material which is irritating to the delicate mucous membrane of the mouth. Wallenberg is of the opinion that the use of tobacco is the most frequent source of leucoplakia, and believes the disease is produced by the irritation of the volatile and empyreumatic oils liberated in smoking it. The essayist has no hesitation in expressing it as his opinion that the use of the pipe is on this account much more dangerous to a sensitive mouth than the smoking of cigars or cigarettes, as the pipe, from long use, is generally saturated with these oils, which often come into direct contact with the mucous membrane of the tongue, causing smarting and burning sensations, with more or less irritation. In the habitual smoker the irritation becomes chronic, producing a thickening of the epidermal layer and infiltration of the papillary layer with round cells.

Erb collected and analyzed 240 cases of leucoplakia, and states as his belief, that the lesions are, as a rule, due to "epithelial thickening, resulting from syphilitic mucous patches." Of this number two only were women, and these were both syphilitic. In about 60 per cent. of the cases there was a clear history of syphilis, while in many others a very strong suspicion of such an infection existed. In four or five cases anti-syphilitic treatment either cured or greatly improved the conditions, even when they had existed for a long time. Out of 148 cases who were interrogated as to their use of tobacco, 47 smoked little, or not at all; 101 smoked moderately, and 2 excessively. Syphilis alone occurred in 36 of these cases, smoking alone in 37, syphilis and smoking occurred in 64, and neither in 11 cases. The following conclusions were reached: 1, syphilis or smoking alone may be the cause of this affection in about the same proportion of cases; 2, in a majority of cases it may be due to both; 3, it rarely appears without being referable to one or the other of these causes; 4, other forms of irritation seem to play only a minor part. He believes that a certain predisposition must be assumed, in view of the great number of syphilitics and smokers who never develop the disease. (Sajous' Annual.)

Symptoms and Diagnosis.—Leucoplakia may be recognized by the presence of circumscribed or diffuse, smooth, white, bluish-white or pearly-white radiating patches appearing in varying numbers upon the mucous membrane of the cheeks, lips, gums, palate or tongue. These patches often coalesce to form larger ones. In their earliest stage they are not elevated above the surrounding membrane, are smooth and glistening in appearance, and range in size from tiny, irregularly-outlined spots, to large plaques the size of a silver half-dollar, or even larger. At first they are not sensitive, and on this account may exist for a long time without the knowledge of the patient. Many cases never progress beyond this stage. Others may slowly increase in size, thickness and intensity of color, the plaque being slightly raised, the surface hard—*cornified*—and roughened. Accompanying this stage—especially when the disease is located upon the dorsum of the tongue—the patient will complain of a persistent dryness of the parts and inability to speak or use the tongue with comfort, except by frequent moistening of the mouth. Later, fissures appear in the tongue, and there is developed a smarting, burning sensation, as though the parts had been scalded. Alcoholic liquors, fermented beverages, acid fruits, highly seasoned or very hot food or drinks, and chew-

ing and smoking tobacco increase these sensations and sometimes render the partaking of food a very great discomfort. Associated with this condition, there is a tendency of some portion of the plaque to peel off or slough out from time to time, leaving a reddened or raw surface which is exceedingly sensitive, and sometimes quite painful. Ulceration may follow, and degenerative changes develop, ending in the formation of a carcinoma. When the disease is in the tongue, warty growths sometimes appear in the leucomatous patches, which show a marked tendency under the stimulation of an irritant to take on a rapid form of carcinomatous degeneration.

Authorities are not agreed, however, as to the earliest developments of the leucomatous patch. Schwimmer and Barker described the earliest stage of the disease as appearing in the form of dark-red spots or reddish patches, which later are covered with the white or pearly-white surface. Butlin, Debove, Nedopil, and nearly all other writers upon the subject, describe the first stage as appearing in the form of radiating, non-sensitive white or pearly-white plaques, and your essayist desires to state that the testimony of his own observation corresponds with the latter conclusion. Another fact should also be borne in mind in diagnosing this affection, viz.: The progress of the disease is in many instances very slow and may have the appearance of having reached the limits of its development, while occasionally the disease may disappear with advancing age. On the other hand, the disease, which has seemed for many years to remain in about the same condition, may suddenly assume a most rapid and malignant type of degeneration. Shield reported a case of leucoplakia linguæ in a man 75 years old, for whom, two years before, one-half of the tongue had been removed for undoubted carcinoma, who gave a previous history of the presence of the disease—"bad tongue"—for more than twenty years.

The following cases are introduced to illustrate the various stages of the disease as found upon the tongue, gums and cheeks, and are taken from the private practice of the essayist:

Case 1.—This was a case of leucoplakia linguæ covering the entire dorsum of the tongue. The gentleman was a Hebrew merchant, 40 years of age, of robust health, and an inveterate smoker of cigars, his daily indulgence being from ten to fifteen strong Havanas. The disease had never given him any inconvenience, and he had not known of its presence until your essayist called his attention to it, when making an examination of his mouth. He was advised to stop smoking, but refused point blank, under any circumstances. There was no history of skin diseases or of syphilis. He drank wine in moderation.

Case 2.—This is a similar case of leucoplakia linguæ, in which, however, the stage of degeneration of the papillary layer has begun. The gentleman was of German birth, 45 years old, of large physique and good health, and also an inveterate smoker, both of cigars and the pipe, and was addicted to the use of liquors, but rarely to excess. He had been cognizant for several years of the abnormal color of his tongue, but it had given him no inconvenience until two years previous to the time when he appeared for consultation, and was referred to me by Dr. Gustav Fütterer of Chicago. The patient complained of an abnormal dryness of the tongue, tenderness of the denuded point, and a smarting, burning sensation, as though the tongue had been scalded. This was increased by taking salty or peppery foods, acids, wines or spirits. There was no history of psoriasis, zona or other skin diseases, nor of syphilis. He was warned of the dangers of the disease, under constant irritation, assuming malignant characteristics, and was advised to leave off the use of tobacco and all irritating or stimulating foods or drinks. This he cheerfully consented to do, and has faithfully followed. The treatment consisted of: 1, removing the salivary calculus and all sharp edges of the teeth and thoroughly polishing the surfaces. Carious teeth were treated by filling with gold, to remove all possibility of mechanic irritation; and 2, the application every other day of tinct. of aconite and tinct. of iodin, equal parts, to the denuded surface of the tongue. The applications caused slight smarting at first, but this subsided after a few minutes. After the first week a slight improvement in all the symptoms was noticed. Whether this was due to the local application or to the removal of all causes of irritation, was a question in the mind of the essayist. The treatment, however, was continued, and at the end of two months the symptoms, with the exception of the abnormal dryness of the tongue, had entirely disappeared and the denuded part was covered with healthy-appearing papillæ. Associated with disease of the tongue were plaques upon both cheeks and the right superior gums.

Case 3.—This case illustrates the disease as seen upon the gums of both jaws in a gentleman of Canadian birth, 50 years of age, and in robust health. This patient was also a great smoker of the pipe. The disease extended from the first bicuspid tooth backward to the maxillary tuberosity in the upper jaw, and from the second bicuspid tooth to the angle in the lower jaw. In this case the disease had not caused the least inconvenience, and the patient had not noticed any abnormal condition of the gums. There was no history of syphilis or of any skin disease, but he had gouty tendencies; he used spirits moderately, generally Scotch whisky. He was cautioned against the use of tobacco and spirits and stimulating or pungent foods or drinks, and advised to report frequently for examination, which he has done. During the last ten months there has been no appreciable change in the condition of the disease, and as it does not trouble him he will not give up his way of living.

Case 4.—This is one of leucoplakia buccalis upon the right and left cheeks, opposite the line formed by the occluded teeth in a retired gentleman of American birth, aged 52 years, and of fair health. The disease was discovered while making an examination of his mouth. The patient had not been aware of any abnormal condition of his mouth, and had not noticed the presence of the plaques. There had never been any pain or inconvenience associated with the affection. He is an habitual but not an excessive smoker of good cigars, and uses liquors and wine in moderation, but does not eat highly seasoned foods. There was no history of syphilis or of skin disease. The same advice was given as in the previous case, but he refused to give up the use of tobacco. This gentleman's case has been under observation for eight months, with no appreciable change in the size or condition of the plaques.

Case 5.—This is the last case to come under my observation, and shows the disease in its early stage, located upon the alveolar ridge in a Hebrew gentleman, 74 years of age, who was in otherwise good health. He was not cognizant of the presence of the affection. There had been no sensation to arrest his attention other than a slight roughness of the tongue, of the gums at the location of the disease, and which he had noticed for several months. No history of syphilitic infection could be obtained, and he has never been affected with any form of skin disease. He has been a moderate smoker since a lad, having rarely exceeded three cigars *per diem*.

The other cases have been reported by the essayist in his recent work on "The Injuries and Surgical Diseases of the Face, Mouth and Jaws." The first was a case of leucoplakia linguæ, the plaque being situated upon the dorsum of the tongue, and the size of a quarter dollar. This gentleman was 40 years old, and an inveterate smoker of cigars. The second case was one of leucoplakia gingivæ and buccalis in a man past 50 years of age, which proved fatal from malignant degeneration. The third was a similar case in a physician 45 years of age. The disease, however, was in its early stage, and had not been recognized by the patient. Immediate operation was demanded, and the diseased tissue removed down to the bone. Eight years afterward there had been no recurrence.

Differential diagnosis.—The affections which may be confounded with leucoplakia buccalis are the mucous plaques of syphilis and epithelioma. In the earlier stages of the disease such a mistake could hardly be made, but in the later period of the affection it might quite easily be confounded with syphilis or epithelioma. A three or four weeks' course of treatment with the iodid of mercury or potassium would clear up the diagnosis of the former, while in the latter it would

be necessary to resort to the aid of the microscope for a positive diagnosis, even though there was present the clinical evidence of enlarged lymphatic glands.

Pathology.—In examining the histologic structure of the leucomatous patches, whether "thick or thin," a marked change will be noticed in the character of the papillary layer of the tongue, the mucosa of the lips and the cheeks, and in the cells of the epidermis. The papillæ of the tongue are often very much atrophied, and occasionally have almost entirely disappeared; while the epidermal layer has taken on a horny character more like that of the skin. This is true also of the epidermal layer in leucoplakia of the mucous membrane of the lips and the cheeks. It is also noticed that the epithelial processes, both of the tongue and of those portions of the oral mucous membrane affected by leucoplakia, are much shorter than is natural, and that the corium is infiltrated with leucocytes. In advanced stages of the disease true cell-nests are discovered, which establishes the fact of carcinomatous degeneration. How these cell-nests are formed in carcinoma is still a disputed question, but it would seem more than probable that in carcinoma of the tongue and oral mucous membrane following leucoplakia, the cell-nests were developed from traumatic inclusions of epithelial cells following the repeated ulceration and healing of the leucomatous patches.

Prognosis.—The interest in the prognosis of leucoplakia centers around the tendency or the predisposition of the disease to be followed by malignant degenerative changes, ending in the formation of carcinoma. That such a predisposition exists there is not a shadow of a doubt.

In the "American Text-Book of Surgery" we find this statement: "Many cases of cancer of the tongue are preceded by leucoma, the so-called psoriasis of the tongue." Garretson was of the opinion that the disease occupied the border-line between the non-malignant and the malignant growths. Le Dentu says it is not at all unusual for leucoplakia to become epitheliomatous. He does not, however, consider this to be a general predisposition of the disease, but that it is sometimes induced by a tendency of leucoplakia to degeneration. Sutton says: "In a fair proportion of cases (20 per cent.) epithelioma of the tongue is preceded by changes known as leucoplakia and ichthyosis; and they are frequently referred to as precancerous conditions. In the case of the cheek, epithelioma is sometimes preceded by a patch of leucoplakia. The disease often starts close to the angle of the mouth and extends backward into the cheek; or it begins in the fold of mucous membrane between the gum and the cheek, and occasionally it starts in the center of the cheek, often on a level with the meeting-place of the crowns of the upper and lower molar teeth."

Senn, in speaking of carcinoma of the mouth, says: "Carcinoma of the mucous membrane of the cheek is sometimes preceded by a patch of leucoplakia. The influence of chronic irritation in producing carcinoma is well shown in carcinoma in this locality, as the tumor very often corresponds in its location with the crowns of prominent upper and lower molar teeth." Butlin states that out of eighty cases of cancer of the tongue, sixteen were preceded by leucoma. Park believes leucokeratosis may become the seat of an epithelioma, and its surgical interest depends upon the frequency with which it is followed by this malignant growth. Warren says he "has seen but few cases of leucoma; one of these in a lady on whose tongue it first appeared in youth, and remained in the shape of several large, brilliant white patches, until old age, when it disappeared: in another case, a man 43 years of age, the tongue had been troublesome from childhood; the mucous membrane was sensitive and easily irritated, and it was prone to inflammatory conditions, during which small ulcers appeared. At the age of 34 years typic leucoma appeared, situated for the most part on the right side of the tongue Three years later the patches enlarged, and a warty growth formed in the center. Three years after this he (Warren) removed with the knife the largest patch which was about the size of a silver half dollar. This operation was performed in June, 1891. In October, 1891, a small epithelial growth of an apparently malignant nature appeared on the opposite side of the tongue. This growth was removed and found to be typic cancer. In December a similar growth was removed from the tip of the tongue. In April, 1892, both growths having reappeared, a large portion of the left side and the tip of the tongue were removed by a wedge-shaped incision. The disease never returned on the tongue, but six months afterward a glandular enlargement was observed under the left jaw, and the patient died two months later. The growth was found to be typic carcinoma."

Treatment.—Leucoplakia of the oral mucous membrane is generally exceedingly rebellious to treatment, and quite often shows a marked tendency to carcinomatous degeneration; therefore the measures employed are, perforce, largely those of palliation and heroic operations. Those cases, however, which give a clear history of syphilitic infection may be benefited by a course of antisyphilitic treatment; but it may be stated as a fact, that up to the present time no drug has been discovered which, acting constitutionally, has any beneficial effect whatever upon the progress of leucoplakia.

The preventive measures which may be instituted in the treatment of leucoplakia are the removal or discontinuance of all forms of chemic and mechanic irritation. Persons who suffer from an irritable and sensitive oral mucous membrane should avoid chemic irritants of all kinds, particularly alcohol in any of its forms, acids, pungent condiments, very hot foods or drinks and tobacco. In persons already afflicted with the disease such irritants stimulate the progress of the affection, and should, therefore, be strictly interdicted. It is much easier, however, to advise a patient as to what he should do and what he should not do than it is to get him to follow your advice. In the early stage of the disease—before it has caused any real inconvenience—it is very difficult to get a man who is in the habit of using spirituous liquors or tobacco to consent to give them up. He feels that you may be mistaken, or that you are magnifying the danger, and hence decides not to change his habit of living, at any rate for the present, or until he is convinced that your advice is correct. Perhaps he will consult some other professional gentleman who disagrees with your diagnosis and laughs at your fears. This reassures the patient, and he goes on with his old habit of life for months, perhaps for years—in some cases with impunity; in others with most disastrous effects to his comfort and his life.

The mechanic irritants which are most common in the mouth are usually associated with the teeth or with artificial dentures, such as carious cavities,

agged roots, fractured teeth, salivary calculus, rough or ill-fitting plates, or plates made of a material which are irritating to a sensitive mucous membrane. All such forms of irritation should be at once removed, by filling the cavities, extracting the roots, giving appropriate treatment to the fractured teeth, removing the salivary calculus and carefully polishing the surfaces of the teeth, while the irritating artificial denture should be replaced by others free from these objections, or discarded altogether. Too much stress can not be laid upon these points as a safeguard to the patient against the development of the malignant form of the disease.

Local treatment.—Nicholson, who believes leucoplakia to be zona of the oral mucous membrane, considers local applications of only temporary service, while the constitutional treatment for zona is often entirely fruitless. He desires, however, a trial of the tincture ferri perchlorid, 25 to 30 minims (1.3 to 2 grams), three times *per diem*, as in one of his cases it seemed to give relief from the burning pain, and improved the condition of the lingual epithelium in a remarkable manner, when all else had failed. Rosenberger recommends the local application of pure balsam of Peru painted upon the patches with a brush, and allowing it to remain in contact for from three to five minutes. The immediate effect is a slight burning sensation with an abundant salivation. These applications he advises to be made three times *per diem*. In thirteen cases so treated great relief was obtained. The patches, however, heal slowly, a year in some cases being required to produce a cure.

Leistikow advises the local application of the following paste:

Terræ siliceæ	gr. xxiv	1.5
Resorcini	gr. xlviii	3
Adipis	gr. viii	.5

This he applies to the affected parts with a swab. From eight to fourteen days afterward a contraction or shriveling is observed, and a slightly inflamed condition of the mucous membrane, which by the application of balsam of Peru is brought to a normal condition. Rosenberg reports a case of leucoplakia which had lasted for over seven years, and had resisted all the usual methods of treatment, in which the plaques disappeared in a few days after being painted with a 20 per cent. solution of the iodid of potassium.

In Case 2 presented by the essayist, the local application to the plaques and the denuded surface of the tongue of tinct. aconite and tinct. iodin, equal parts, every other day for two months, relieved all the symptoms except the abnormal dryness of the tongue, while the denuded part healed and was covered with healthy-appearing papillæ. In the other four cases treatment was declined because of the apparent trivial nature of the disease to the minds of the patients.

Palliative treatment.—This consists of the use of alkaline lotions or mouth washes. Butlin recommends for this purpose in the milder cases, bicarbonate of potassium, 15 to 20 grains in one ounce of water, and in the syphilitic cases, chromic acid, 1 to 2 grains to the ounce of water, or a 5- to 10-grain solution may be painted upon the plaques. Bicyanid of mercury is also recommended in solution of 1 to 2 grains to an ounce of water, and painted upon the plaques. In the severer cases, he recommends solutions of bicarbonate of soda or of boric acid. He thinks mel boracis (honey and borax) is better suited to some cases than alkaline solutions, but as a general rule, the alkaline solutions give greater relief in cases of leucoplakia of long standing. A trial of these various remedies is necessary in order to find the one best suited to the individual case.

Surgical treatment.—In the severer forms of the disease, radical operation is the only safe method to follow. The tendency of the disease to assume a malignant character should cause it to be treated as a malignant growth, and thorough extirpation practiced at the earliest moment. Temporizing by the use of caustics is worse than useless, and most authors deprecate their use for the reason that the irritation seems to increase the dangers from malignant degeneration. Garretson was very emphatic in his denunciation of the use of caustics, of every form, in the treatment of this disease. Butlin says: "One general rule holds good for all cases of leucoma, namely: not to use caustics. Whatever danger there may be of the development of carcinoma is certainly increased by the employment of nitrate of silver and other caustics."

In the fatal case of leucoplakia buccalis and gingivæ reported by the essayist, the physician who had charge of the case treated it with nitrate of silver, and later with chromic acid, with the result of stimulating the more rapid spread of the disease. On the other hand, we may contrast the results obtained by a radical operation in an almost identic case, also referred to on a previous page, in which a permanent cure resulted, as proved by the fact that there has been no recurrence after a period of over eight years. The consensus of opinion obtained from the perusal of the most eminent authorities is, that thorough and complete extirpation of the diseased tissue is the only reliable method of treatment, and this, to be effective, must be practiced before malignant symptoms have developed.

Perrin, who reports a case of leucoplakia linguæ and labialis with papillomatous epithelial degeneration, secured a permanent recovery by the thorough extirpation of the plaques by surgical means. He urges early and complete extirpation as the only way by which to avoid a final transformation of the disease into true epithelial carcinoma. Dubois-Havenith has exhibited a case of leucoplakia linguæ upon the left border of the tongue, which was successfully treated by curetting and the galvano-cautery. Butlin does not recommend the early excision of the plaques when the disease is located in the tongue, unless it "is very obstinate, and scarcely at all relieved by treatment"; but he has no doubt of the wisdom of such an operation in "indurations, warty growths and very obstinate ulcers, particularly when they present the slightest increase of induration about their bases. Such conditions must be considered as young cancers, and must be dealt with as if they were in truth cancers." Hulke urges early excision of all hard and warty patches (ichthyosis) upon the tongue before they attain a large size as the only means of cure.

In closing this somewhat lengthy paper, your essayist desires to thank you for your forbearance and kindness in listening so attentively, and trusts that the presentation of such a subject has not seemed to you out of place, but rather in its right place, and that the suggestions herein made will have so interested you that in the future you will carefully observe the mouths of your patients with the view of studying this disease and reporting your discoveries. The

disease is no doubt on the increase, if your essayist may judge from his own experience, for up to one year ago he had seen but three cases in all his practice; since this period he has recorded five additional cases.

BIBLIOGRAPHY.

Zeigler: Text-Book on Pathology, Anatomy and Pathogenesis.
Park: Surgery by American Authors.
Warren: Surgical Pathology and Therapeutics.
Sutton: Tumors, Innocent and Malignant.
Senn: Pathology and Surgical Treatment of Tumors.
Butlin: Diseases of the Tongue.
Hyde: Diseases of the Skin.
American Text-Book of Surgery.
Sajous: Annals, 1889 to 1896.
Rosenberger: Munch. Med. Woch., Oct. 30, 1869.
Garretson: International Dental Journal, June, 1890.
Shield: British Medical Journal, Nov. 29, 1890.
Du Castel: Annales de derm. et de syph., Paris, 1892, p. 182.
Perrin: Marseille-médical, Nov. 15, 1892.
Dubois-Havenith: Journal de méd. de chir. et de phar., Bruxelles, Jan. 23, 1894.
Nicholson: British Medical Journal, March 3, 1894.
Le Dentu: Practitioner, London, March, 1895.
Rosenberg: Deutsche med. Woch., Leipsig, Sept. 13, 1894.
Erb: Munch. med. Woch., Munich, Oct. 18, 1892.
Hulke: Translations of the Clinical Society of London, 1894.

KERATOCENTESIS IN INFECTED WOUNDS OF THE EYEBALL.

BY M. F. WEYMANN, M.D.

Professor of Ophthalmology and Otology, Central Medical College; Oculist and Aurist to Home of Little Wanderers.

ST. JOSEPH, MO.

Thanks to antiseptic and aseptic treatment, we are now pretty well enabled to eliminate wound infection. Still, there are parts of the body, chiefly cavities, where, even with the greatest care and most rigorous asepsis, this can not be accomplished. Then, too, there occur wounds that become badly infected before the physician is able to see them. What should be done in such instances?

Antisepsis is certainly not the principal thing, though we do not care to entirely deny its usefulness. It must be borne in mind, however, that antiseptics are, as a rule, severe tissue irritants and only help to increase the discharge, which, in itself, opposes healing. Furthermore, in many cavities the application of antiseptics would be an actual menace to life, by absorption. What, under these conditions, is the most vital point? Drainage, no doubt.

We know that the dangers of local infection are twofold: 1, irritation of the tissues by decomposition products and ptomains, resulting in suppuration and preventing healing; 2, systemic intoxication by absorption of microbic products. Outside these two points we have little to fear. Now, the *vis medicatrix naturæ* is so great that it will successfully combat disease, if assisted a little. By providing for free drainage all oozing is allowed to seep away, if the drainage be made at the lowest point. As soon as the poisons are elaborated by the bacteria they drain away, minus the inconsiderable portion that *clings*, but even with the latter a wound will do well and heal, although not always by first intention.

Perforating wounds of the eyeball with infection are frequent, at least in a comparative sense, and quite often lead to destruction of the organ. Nor are antiseptics indicated for use within the ball, for even so mild an agent as boracic acid will produce a most decided reaction, hence drainage would be the thing called for. The application of a constant drainage-tube is not allowable and not practicable, and for that reason, perhaps, the great principle remains untried. However, seeing infected eyes lost constantly which I thought might be saved, I, two years ago, for the first time practiced intrabulbar drainage by repeated paracentesis of the cornea, and the results have certainly been astonishing, at least so far.

In illustration I offer the following representative cases:

Case 1.—A boy, 14 years of age, had his eye perforated by a flying piece of steel. When first seen the upper lid was swelled, with great photophobia, lachrymation, injection and edematous thickening of conjunctiva. He had excruciating brow-ache, cephalalgia and aching in ball; the iris was sluggish, discolored; aqueous cloudy; ball quite tender. I immediately applied hot fomentations and instillations of atropia, and obtained partial mydriasis and some relief from suffering. On the second day the iris was nearly up, but there were excruciating pains in the eye, yielding to nothing. Paracentesis of eyeball was performed on the lowest point of the sclero-corneal circle. Great relief soon followed, although the iris came down somewhat. During the first week kerato-paracentesis was performed twice daily, with constant use of atropia.

The symptoms gradually subsided until the eye had practically paled out. There was, after the first two days of treatment, very little complaint, except an annoying lachrymation and photophobia, which continued nearly five weeks. Today the eye is well, i.e., it shows no trace of irritation, though the foreign body must be imbedded. A cataract also persists.

Case 2.—A young man presented himself with zonular cataract, bilateral, of course. The opaque zone was very large and had within the past two years clouded completely. Before and after operation (discission) instillation of atropia was made. The first night the patient suffered severely from iris irritation, which, however, subsided after repeated atropinization. At the end of the second day the eye again became quite tender and red and there was severe throbbing pain in the ball; the upper lid was swollen and the conjunctiva strongly injected, also copious lachrymation. The aqueous was murky and cloudy, tension distinctly increased. I thought at first that glaucomatous symptoms might, in connection with iritis, explain all the trouble.

I made a double incision, such as would be obtained by passing a cataract knife through the ball and stopping after counterpuncture is made; freely drained off aqueous, then ran through the anterior chamber a sterilized solution of boric acid (gr. viii to ℥i). This was done with a small canula fitted to a rubber-ball bulb, while counterpuncture was kept open by means of the spreading branches of an iris forceps. This lavage was continued fully fifteen minutes in short intervals, after which the eye was bandaged. Relief was immediate. Six hours later the the local irritation of the boracic acid was well apparent, for the cornea was clouded to such an extent that the iris and pupil were hardly visible. It had very much the same appearance as in interstitial keratitis. The punctural incisions looked like two infective corneal ulcers of the worst type. The first look rather annoyed me, but I was soon reassured when the patient told me that there was no pain to speak of. I instilled atropia and re-bandaged. The next morning the cornea was clear, the aqueous somewhat dirty-looking and some dull ache in ball. The iris was pretty well dilated. Paracentesis was repeated. Without stringing out the story, I want to add that my patient recovered in about ten days. Today—a year since—his cataract is absorbed, his V.=$^{20}/_{10}$, very good after a zonular cataract and a discission operation followed by unmistakable infection.

In practicing keratocentesis, I choose the most inferior spot of the corneal circle, about one-sixteenth of an inch away from the sclera. A small keratome is very good in uncertain hands, owing to the stays, but personally, I prefer a Graefe cataract knife, which I hold parallel to the plane of the iris. This creates a valve-like wound that will not drain except when worked. This is also a prevention against ingress of infective matter from without. Care must be exercised not to wound the iris, and the withdrawal should be very gradual, the tip of the knife remaining in the incision. This makes the flow of the aqueous slow and thus prevents coming down of the iris. Again, with the tip, the inner margin of the lower wound-lip may be depressed at or near the end of the work, so as to enable the operator to draw off almost the last drop.

I would like to call attention to an odd occurrence

in one case, in which there formed a large hypopyon. The aqueous would be full of matter forming a cloudiness or dirtiness of the aqueous when the ball was kept in motion, and settling on the lower margin in the form of a lunula when the patient held the eye still in an upright position. No pain coexisted, and though the eye would clear after keratocentesis, the pus would return in two to four days. I finally ceased operating, the ball paled out and the pus became absorbed. The eye, though still under observation, is now well.

I would like to see other confrères try the measure to determine its value, and any communications on the subject would be received very gratefully by me.

N. W. Cor. Seventh and Felix Streets.

ELEPHANTIASIS SCROTI.

MODUS OPERANDI OF OPERATING FOR ITS REMOVAL.

BY F. E. BRAUCHT, M.D., M.D.S.

APIA, SAMOA.

Every case of elephantiasis of the scrotum can not be operated upon in the same way, as the disease involves the tissues of the scrotum and integument of the penis in a variety of ways, and each case must be dealt with accordingly. It is our purpose to discuss in this paper but a single class of these cases. This class has those cases in which the penis is intra-scrotal. That is, the dangling tumor has so dragged

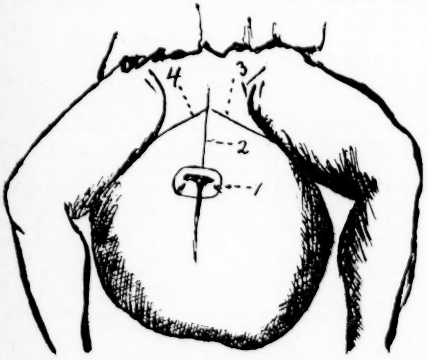


Fig. I.—Intra-scrotal penis.

down and overgrown the penis that it has finally receded into the growth from two to five inches; and the urine is passed through a canal which is lined by the integument that was the former covering of the penis. The true condition of the penis can not be better described than by skinning a cat or rabbit, beginning at the hind quarters and pulling the skin forward over the body until the head is reached. With this explanation, we think the condition can be fully understood by a study of the figures. This class of cases gave us the most perplexity to know how to remove all the tissues involved, and yet have a good covering for the testicles and the penis, and have a good plastic effect. We tried many plans and devices, but none were satisfactory from a plastic standpoint until we hit upon the simple plan it is our purpose to describe.

The first incision (Fig. I, 1) is made with a pair of angular scissors, around the orifice of the canal leading to the glans penis. This incision is made far enough from the mouth of the canal to insure plenty of integument for after-use. What is not needed is afterward trimmed away. The second incision (Fig. I, 2) is made at right angles with the top of the first incision, and runs almost to the pubis. These incisions need not be any deeper than the skin. The skin surrounding the penis canal is now caught with a pair of artery forceps and dissected out with the penis, well down to the pubis. In dissecting out the penis,

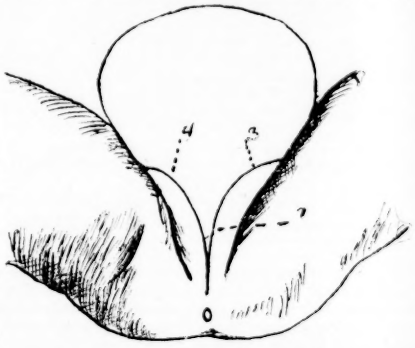


Fig. II.—Incisions behind and down the perineum.

it should be cleaned as free as possible of all connective and adipose tissue. It is then wrapped in a sterilized towel and laid out of the way. Thus far there is usually very little bleeding, but with the next incision a good supply of artery forceps is needed.

The integument around the base of the tumor, or the huge pedicle is not usually affected by the disease, and it is out of this that the new scrotum is formed.

Fig. III.—Showing skin reflected off tumor behind.

The third and fourth incisions (Fig. I, 3 and 4) are commenced at the second incision, about an inch or so from the pubes, and run from it around the base of the tumor, being sure to keep high enough up on the tumor to insure plenty of skin for scrotal flaps, and down on to the perineum as far as it is deemed necessary in order to remove all diseased tissue (Figs. II, 3 and 4). This incision is made through the skin only, which is then dissected off the tumor all around, well down into the groin, and back off the perineum, reflected out of the way and held by an assistant. The

testicles are now found and dissected and wrapped in another towel, and laid out of the way. Fig. III shows the tumor from behind, with the skin dissected off ready to be cut away. The tumor is handled with a rope and tackle, the rope being supplied with two snaps at one end to snap into the handles of a large pair of tumor forceps. This is not needed in small tumors, but for those of forty-five to eighty-five pounds or more, it will be found very convenient. The tumor is now lifted by the tackle, and the tissues put on the stretch. Then with a pair of pedicle forceps the base of the

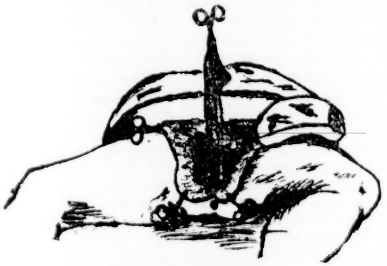


Fig. IV.—Tumor removed.

tumor is grasped close down to the perineum and cut away. Then another pair is clamped on above these and again cut away, and so on until the tumor is freed from its attachment. Care must be taken not to injure the urethra or the spermatic cords. The flaps of skin are now trimmed and fitted for sewing up the scrotum. The skin is trimmed over the perineum so as to come nicely together and from two to three stitches taken in it, as when the repair of the perineum is made in the female, only that not so much tissue is pulled into the wound. Fig. IV shows the tumor removed with

Fig. V.—Operation complete.

the flaps of integument drawn off on either side, the penis held perpendicular, and the testicles wrapped in a towel. After the perineal stitches are placed, the testicles are brought down into place and the flaps are trimmed to make the new scrotum, which is then sewed up to near the base of the penis. Then the integument which was the former covering of the penis, and which has been pulled over the glans penis like a skinned rabbit, is thoroughly trimmed and drawn back over the penis into its proper place. The superficial integument is now trimmed off all round, the edges sewed together, and the operation is completed, as in Fig. V.

THE EPIDEMIC OF SMALLPOX IN CUBA.

BY R. S. WOODSON, M.D., U. S. A.
MEDICAL INSPECTOR, DEPARTMENT OF SANTIAGO.

The present epidemic of smallpox in this Province may be said to be practically at an end. No new cases are appearing; all unprotected persons have been vaccinated, and all infected houses have been disinfected. We have isolated and treated in our isolation hospitals more than twelve hundred cases. These hospitals are located at convenient centers of inspection—Holguin, Gibara, Auras, Fray-Benito, Puerto Padre, Las Nuevas, La Caridad and Mayari. Their records show respectively, 475, 230, 210, 123, 50, 93, 15 and 5 cases. At the present time there are less than three hundred cases under treatment, most of which are convalescent. Our rate of mortality has been less than 12 per cent. We attribute this excellent result to open-air treatment and to bichlorid baths —every patient receiving daily baths in strong solutions (1 to 1000) of bichlorid of mercury. The open-air treatment is a necessity in this locality, the open Spanish sheds constructed of palm leaves, of which the hospitals are composed, affording but little protection, and likewise affording but little lodging for the germs of disease and consequent virulence of infection. This treatment is permissible in this warm, equable climate.

The low rate of mortality can not be attributed to the mild type of the disease, for, as a matter of fact, the disease is of more than average severity. Nor can it be attributed to previous vaccination, for our records show only 2 per cent. of persons possessing such partial immunity, with no deaths. The municipal records of Holguin during the past summer show an average of six deaths a day, with 800 deaths, all told, from smallpox during the year. There have occurred in Gibara 250 deaths from smallpox during the same period. Numerous other small towns have become depopulated and deserted, and have converted their cornfields into graveyards.

No effort had been made by the Spanish authorities to combat the disease: indeed, it would appear instead that they had, with devilish intent, encouraged its ravages as a method of inhuman warfare against the Cubans. The Cubans themselves seemed to have accepted the inevitable with dogged resignation. Twelve thousand Spanish soldiers had been quartered in Holguin for three years, until the city was submerged in filth and overwhelmed with disease. Such were the conditions met by Hood's Regiment upon taking possession of this district.

We are happy to repeat that after two months of arduous labor we have placed the district in an excellent condition and have done much toward relieving the oppression and misery consequent upon the Spanish domination. On January 7 the lazaretto of Holguin was destroyed by fire, it having outlived its usefulness. The lazaretto at Gibara was likewise destroyed some days previously. Our methods of control have been: 1, the establishment of isolation hospitals as above; 2, the isolation of all cases therein; 3, house-to-house inspection; 4, the establishment of convalescent hospitals for final disinfection; 5, the vaccination of all unprotected persons; 6, the disin-

fection of infected houses. Our territory has embraced nearly a third of the Province of Santiago, presenting numerous foci of infection, the isolation of cases being rendered difficult by the lack of roads, the wildness of the country and the superstitious dread of the natives for vaccination and isolation hospitals, many cases fleeing to the mountains, carrying infection to new localities and necessitating the sending out of members of the commission along the byways and into the untraveled forests of the district.

The sanitary commission organized by the department commander, General Wood, over which I have the honor to preside in my official capacity as Medical Inspector of the Province of Santiago, is composed as follows: Col. Felipe Veranes, chief surgeon of the Cuban Army, in charge of the District of Holguin; Major Guillermo Dolz, surgeon, U. S. V., secretary of the commission; Dr. Meyer Herman of New Orleans, in charge of disinfection and vaccination; Dr. O. H. Stone of Mississippi, member of the commission; Dr. Vincent Gomez of New York and Gibara, in charge of the District of Gibara; Capt. I. B. Massie, Company G, Second U. S. V. Infantry, and M.D., of Houston, Texas, in charge of isolation hospital at Gibara; Dr. Edward C. King, Second U. S. V. Infantry, of Houston, Texas, in charge of isolation hospital at Fray Benito; Lieut.-Col. Rudolfo Socarras, surgeon of Cuban Army, in charge of isolation hospital at Holguin; Col. Antonio Lopez, surgeon of Cuban Army, in charge of the District of Tunas; Lieut.-Col. Faustino Silven, surgeon Cuban Army, in charge of the District of Puerto Padre; Dr. Calixto Garcia of Gibara, in charge of isolation hospital at Auras; Dr. Jose Maceo Chamorro of Havana, in charge of isolation hospital at Puerto Padre; Dr. Humberto Manduley of Havana, sanitary inspector of the city of Holguin; Ramon Reyes Zamora, pharmacist; Marcelino Torres, clerk of the commission, and Capt. Charles Muercke, Artillery Cuban Army, chief of sanitary corps of 100 men.

All the above are selected men and have done excellent work in their various capacities. We have been greatly aided in our work by Col. Duncan N. Hood and his regiment of immunes, the Second U. S. V. Infantry. In strange contrast to the insanitary horrors of Spanish occupation is the present occupancy of this regiment, with their careful attention to every detail of military hygiene. Although having taken possession of a district recently garrisoned by 12,000 Spanish soldiers, with the accumulated filth of three years, with a fierce epidemic raging and malarial fevers rife, yet this regiment presents an unparalleled effective strength as compared with other regiments serving in this tropic climate, and as yet no American soldier has fallen a victim to the disease.

REPORT ON MASSAGE.

EFFECT OF MASSAGE ON THE BLOOD—MASSAGE IN AFFECTIONS OF THE HEART—MASSAGE IN SURGERY.

PAPER NO. II.

BY DOUGLAS GRAHAM, M.D.

BOSTON, MASS.

(*Continued from p. 173.*)

EFFECTS OF MASSAGE ON THE NUMBER AND HEMOGLOBIN VALUE OF RED-BLOOD CELLS.

One of the most interesting and elaborate investigations in the past few years is that of Dr. J. K. Mitchell into the effect of general massage on the blood.[1] These observations were made upon thirty-five people, a few of whom were well, but most of them were suffering from anemia, slight or severe; anemia from hemorrhage and from toxic causes, from chlorosis, from senile and other malnutritions, and one from pernicious anemia. As a rule, in nearly all the cases after massage, there was found a great increase in the number of red globules, and in about half the cases an addition to the hemoglobin also. This increase was found to be greatest at the end of an hour after massage, and after this it slowly decreased. This decrease was postponed more and more when the massage was given daily; and in one case of severe anemia that had been under rest, feeding and massage, after all these had been stopped, the corpuscles and hemoglobin still continued to increase amazingly, thus dispelling the presumption that the improvement in these cases is due to a temporary effect. In this case the white corpuscles were enormously increased; before massage they were 1 to 1200; after, 1 to 134. The red corpuscles on January 11 and 12 were 1,500,000 and 15 to 18 per cent. of hemoglobin; on January 24, under rest and massage, the amount was 3,800,000 before and 5,400,000 after massage. All treatment was stopped on January 24, and yet the corpuscles continued to increase until on January 31 they had reached the amazing figure of 5,500,000, with 50 per cent. of hemoglobin.[2]

Some cases that seemed to be anemic were found on examination of the blood not to be so at all. Massage can not manufacture blood-cells or coloring matter; it simply puts into circulation those that are dormant in the system. This state of things, as Dr. Mitchell aptly puts it, "may be like the want of circulating money during times of panic, when gold is hoarded and not made use of, and interference with commerce and manufacturers results."

The same things have not always the same effects. That often depends on the previous condition of the patients, as well as upon how the same treatment is applied. In two of the three persons whose blood count was lessened after massage, active exercise had just been previously taken. One had walked two and a half miles on a very cold day; the other a mile. In both of these there was marked diminution of the red globules after massage. The author thinks that inasmuch as these cases had already an increased activity of circulation from exercise, the rest and the massage tended toward a reduction of their blood globules. But he does not tell us that they probably received as much temporary benefit from the manipulation as those that were resting and had an increase in the number of blood-cells after massage. A very important point that he has called attention to is that headaches frequently occur after general massage in sensitive individuals, as a result of temporary plethora. It need not, therefore, be regarded as a reason for stopping massage, but rather as a good indication for its continuance.

MASSAGE IN THE TREATMENT OF HEART DISEASE.

Before Schott or Œrtel were ever heard of your reporter advocated and practiced the careful use of massage for weak bodily conditions, and as the patients grew stronger passive motion was added; then as they improved, resistive movements were combined with

[1] American Journal of the Medical Sciences, May, 1894.

[2] Eleven years ago the reporter called attention to the fact that in cases of local or general neurasthenia, improvement still went on after the discontinuance of massage, in cases that had apparently come to a stand-still.

the preceding, and when recovery was sufficiently far along they were told to exercise actively, to go about their business. Dr. Douglas Powell has become converted to this way of thinking, and in the *British Medical Journal* of April 9, 1898, he helps to define more clearly the use of massage and exercise. He tells us that massage is a means of helping on the convalescent stage of acute heart disease, and of combating the tendency to stagnant circulation in those who are disabled by chronic heart disease. The treatment, he thinks, is still more useful in maintaining the circulation and mildly stimulating the coronary circulation in those who are bed-ridden, and on that account suffer from impairment of heart nutrition and chilly extremities, feeble pulse, torpid digestion and passive congestion of the lungs. The treatment is not advisable in acute affections of the heart.

The effects of the Schott or Nauheim exercises are a stimulation of the heart's action, with a steadying effect or increased completion of the systole, improved circulation through the coronary vessels and an increased motility of the blood, by its readier passage in greater bulk through the muscles, thus relieving stagnation in the great internal organs, especially of their veins. The graduated exercises may be regarded as a *counsel of perfection*, as a preliminary to the return to this increase of active life of which the condition of their heart admits, and also as a guide to what that measure of exercise will be. Resistive exercises are especially adapted for the initial treatment of those flabby, irritable, "stuffy" hearts, applying this term to cases of fatty infiltration and impaired metabolism which are met with in people of venous plethora.

In cases of chlorosis with dilated heart, after a preliminary week or two of rest, the Schott treatment is valuable if combined with a dry, bracing air and mild chalybeate. It is useful in commencing failure of the heart, in chronic valvular lesions, combined with less of other exercises, and also after such cases have been restored to a certain extent by digitalis. It is unsuited in all cases of acute endocarditis while there is any trace of activity of lesion left, and in cases of advanced cardio-vascular changes of the nature of sclerosis, or in introspective people with neurotic hearts.

An excellent summary of this treatment of heart affections was given by Sir Grainger Stewart before the British Medical Association at Carlisle. He has fully satisfied himself on the following points:

1. That in the great majority of cases of cardiac dilatation, the area of cardiac dulness diminishes perceptibly during each administration of massage.

2. That the character of the cardiac sounds, and the rhythm and strength of the pulse correspondingly improve.

3. That the patients usually experience a sensation of comfort and feel the better for the treatment.

4. That although the immediate favorable effects pass off in a few hours, yet they frequently do not pass off completely, for he has often found the line of cardiac dulness within that with which they had started at the previous séances.

5. That repeated applications of massage bring about a permanent diminution of the area of dulness, with improvement of pulse and of the patient's sensations.

6. He has seen a case in which the so-called Schott treatments produced a deleterious effect, rendering the heart more irregular and intermittent. It was afterward treated by massage alone on the following day with most striking benefit. It turned out that the patient was not sufficiently well to bear the active movements, but was greatly benefited by the passive ones.

7. That on one or two occasions he has seen the manipulations produce unfavorable effects, apparently because the heart was too feeble and the patient was fatigued at the time of application.[3] (In this last case it is possible that the massage was too vigorous, in that the manipulator himself was not in good condition. Your reporter recently had to walk three-quarters of a mile in the teeth of a cold wind to give massage to a patient with a weak heart. The result was the only unfavorable one of the kind he ever had. The patient was unduly fatigued. If I could have ridden to the patient's door the result would most likely have been different.)

The distinguished Dr. Schott[4] himself demonstrates to us by means of drawings and wood-cuts that fifteen minutes of systematic resistive exercise perceptibly diminishes the size of weak and dilated hearts, as seen by the fluoroscope; while straining, irregular and unsystematic exercise, such as wrestling, on the other hand, produces dilation and weakness of the heart. The immediate effect of the Nauheim baths was not so marked as after the exercises, but it seemed to last longer, while the exercises have the advantage of being used more easily and several times a day. A few years ago who would ever have imagined that we could look right through a patient and see the effects of massage, exercise and baths on their internal organs?

Dr. Albert Abrams[5] finds that any cutaneous stimulant—mechanic, chemic or electric, will produce diminution of the size of the heart, with temporary dilatation of the lungs. Vigorous cutaneous friction by means of a wire brush seemed to afford him results in heart disease nearly as good as that obtained by the more elaborate treatment by means of baths, massage and exercises. He quotes Moccucci, who sprayed the left half of the abdomen with ether in twelve cases of enlarged spleen, with the result in decrease in volume of the spleen in all the cases. In repeating these experiments Dr. Abrams noticed a decided diminution of the size of the spleen in all the people he tried it on, irrespective of the fact whether the spleen was enlarged or not. Ether spray over the heart and over the liver caused decrease in size of both these organs. The results were confirmed not only by percussion but also by sight, by means of the fluoroscope.

Maas[6] has reported two cases in which patients apparently dead from chloroform syncope were resuscitated by compression in the region of the heart. In both cases respiration and radial pulse had entirely stopped, and the pupils were dilated. The manipulation of the heart in both cases was carried out for over an hour. Compression over the heart was used 120 times a minute, and soon after it was begun the pupils became smaller and the paleness of the face disappeared. Afterward both patients suffered from mental derangement, difficulty of swallowing and speaking, all of which passed off shortly.

All this strengthens our belief in what we are told of Mary, Queen of Scots, which hitherto, we must con-

[3] Mechano-Therapy in the Treatment of Heart Disease: Dr. T. Stretch Dowse, 1898.
[4] New York Medical Record, March 26, 1898.
[5] Medical News, Jan. 7, 1899.
[6] Berlin Klin. Woch., 1892, No 12.

fess, was not very great. She was stricken down, Oct. 17, 1566, with a fever, caused by fatigue and the annoyance of her Darnley husband. She was very ill and sank rapidly. She became cold and rigid, her form straightened out, and her pulse and respiration were no longer perceptible. All despaired of her save her physician, Dr. News, who, hoping against hope, *continued to use vigorous friction, and at length succeeded in restoring her to life.* She began rapidly to improve. Her death meantime had been reported in Edinburgh. No doubt, many times afterward she wished she had then died; for it would have saved her from a vast amount of trouble and an ignominious death.

MASSAGE IN SURGERY:

Observations at Surgical Clinic of the University of Berlin.

Zabludowski[7] tells us that massage is of value in the prevention of thrombosis, and that it also relieves the symptoms of existing thrombosis. Good results are obtained from it in peripheral disturbances of the circulation in varices, venous stasis, lymph-stasis, local syncope of arteriosclerosis, and in obstipation and pains in the abdomen, enteroptosis, spasm, residual perityphlitic exudation and cicatricial stenosis of the pylorus.

Massage used at the right time acts as prophylaxis against pleuritis and the formation of thrombosis. In a case of weakness of the heart after influenza, under similar circumstances, one leg which had no massage became gangrenous and soon had to be amputated; the other leg, which soon after began to have similar appearances, stasis, etc., got well under careful massage.

In paralyses of central and peripheral origin, where the functions of the affected centers, nerves and muscles can not be exercised, massage often succeeds in again restoring the capability of action, not only by its effect on the periphery, but also by psychomotor impulses in the formation of new associations and coordinations.

Massage is contraindicated in cases in which the cerebral or spinal affection is accompanied with muscular spasm, contracture and exaggerated tendon reflex.

In order to obtain good results in chronic neuritis, massage should be applied with considerable energy properly directed. Zabludowski is often convinced that, even where there are permanent anatomic changes with lasting functional disturbance and pain, it is possible to do much good by means of massage. It is a sovereign remedy "against surgical affections which have kept the patients long in bed, as it helps them, in a short time, to get to their legs again" (when they have any left to walk on).

Zabludowski insists on a long and careful training of those who intend to do massage. He mentions many affections, of a serious nature, which may result from ignorance of the details of the method, or carelessness in its practice. These are: 1. The appearance of *furunculosis* in one case of diabetes, with a fatal termination. 2. Extensive abscesses of the abdomen, in one case of pyemia, with a fatal result. 3. Break of the formation of callus in consequence of too brusque movements in old people and children. 4. Dislocation of fractures, mostly of the patella and olecranon. 5. Transition of processes almost recovered into subacute and acute, mostly cases of arthritis sicca and tuberculosis. 6. Transition of acute cases into chronic, most frequently of slight sprains into chronic arthritis. 7. Joints becoming stiff by adhesion and not being loosened at the proper time. In many cases, through long inactivity, the joints have undergone changes that can not be alleviated. 8. The production of tendo-vaginitis, myositis and neuritis. 9. The causation of movable kidney and enlargement of hernia, especially umbilic hernia, both by too strong pressure and long-continued kneading of the abdomen. 10. The transition of slight forms of neurasthenia and hysteria into severe ones by tedious and painful manipulation and by long continued or too extensive peripheral nerve irritation.

[7] Sammlung Klin. Vortrage, 1898.

MASSAGE FOR GOUTY DEPOSITS IN THE SOLE OF THE FOOT.

Dr. Kittel[8] mentions that in the aponeurosis of the foot and of the bones there sometimes occur collections of small particles like concretions of sand, which by pressure interfere with walking. These are thought to be the result of interference with the circulation of the foot from exposure to dampness. A gradual degeneration takes place, followed by necrosis of tissues; deposits of urates follow; stiffness, deformity and distortion of joints occur. The clinical symptoms are not those of true gout, but seem to be an atypic form of gout. Medical treatment proved to be useless, as the deposits were encapsulated in necrotic tissue beyond the reach of medicinal means of promoting absorption. For treatment, the author recommended mechanic exercises with massage, and the application of cloths wet in alkaline solutions, from which much benefit was derived.

MASSAGE AFTER OPERATION IN INFANTILE PARALYSIS.

Sixteen operations for the transplantation of muscles in infantile paralysis are described by Drobnik.[9] He states that it is very difficult to determine by electric examination what muscle is paralyzed beyond massage, and what muscle can be developed. In certain cases he found that atrophied muscles which did not react to electricity developed activity after the partial restoration of the use of the limb. Massage and, later, passive and active motion, should be commenced with great care in these cases.

MASSAGE IN SPASTIC PARALYSIS.

Lorenz advises tenotomy of the spastic muscles, with attempt through separation to lengthen the divided tendons. In spastic equinus the foot should be kept from four to six weeks over-corrected. After this the pronators, the weakened tendo-Achillis and the whole of the foot can be used. Where the knee is spastically contracted after tenotomy of the tendons of the semi-membranosus and gracilis, a lengthening of the tendons is to be expected, and a stretching of the knee, even into the position of a slight genu-recurvation, is desirable for a while. Instead of tenotomy or myotomy of the adductors, Lorenz advises the use of force under an anesthetic. He prefers stretching to an open myotomy (a heroic form of massage). In certain cases neurectomy is combined with myotomy. All retaining apparatus is laid aside at the end of from four to six weeks. Massage, electricity and resistive movements, combined with gradually increasing use of the limb, will in time enable the patient to get about without any apparatus.[10]

(To be continued.)

[8] Berliner Klin. Woch., 1897, No. 17.
[9] Zeitschrift für Chirurgie, Bd. xliii.
[10] Münch. Med. Woch., 1887, No. 23, and Boston Medical and Surgical Journal, July 7, 1898.

SIMPLIFIED METHODS OF BLOOD EXAMINATION. THEIR PRACTICAL APPLICABILITY TO GENERAL DIAGNOSIS.

BY ALFRED C. CROFTAN, M.D.

Late Assistant Professor of General Diagnosis, College of Physicians and Surgeons, Chicago.

PASADENA, CAL.

Laboratory aids to diagnosis, to be universally employed by the practicing physician, should be simple and rapid of execution, should require no costly or complicated paraphernalia, and should yield quicker and more positive results than purely clinical methods.

No period in the history of medicine has been free from attempts to find diagnostic clues in the examination of the blood; it was tried to interpret the rapidity of coagulation, the *crusta phlogistica* of eighteenth century physicians, the appearance of the blood as it flowed from the incised vein. With the development of microscopic technic and an insight into the truths of cellular pathology, valuable data relating to the morphology of the corpuscular elements of the blood in health and disease were discovered. During the last decade, especially through the efforts of German and American investigators—at their head Ehrlich of Berlin and Neusser of Vienna—a mass of purely empiric data on the appearance of the blood in a variety of morbid conditions has been gathered and the recurrence of a characteristic blood-picture in certain diseases verified; inversely, diagnostic clues have been gathered from the appearance of the blood.

The object of this paper, in which no claims to completeness are made, is to describe and elucidate some of the *simplified* methods of blood examination that have been elaborated and put to practical use by the author in practice, in the clinic and hospital ward during the last few years, and which have enabled him in a great many instances to place the keystone into a diagnostic arch by the simple observation of a colored blood-slide. A good microscope, a few coverslips and slides, a bottle of Ehrlich stain,[1] on the one hand, a general knowledge of the morphology of the normal blood corpuscles and a memorized appreciation of the changes they present in different diseases, on the other hand, constitute our working material.

A study of the physical and chemic properties of the blood plasma, i. e., specific gravity, chemic constituents, reaction, etc., have up to date revealed no practically useful information.

The counting of the red and white blood corpuscles is a tedious and, to all intents and purposes, an inexact procedure. Discrepancies running into the hundred thousands in the red, and the hundreds in the white cells will occur. Information sufficiently accurate for diagnosis can be obtained in this direction from a single glance at the colored blood-slide. The same, though not quite so radically, may be said of the determination of the hemoglobin; the percentile measurement of this constituent of the blood is a simple procedure with the aid of Gower's or Fleischl's apparatus; but it is not necessary, and in my experience again, a careful and appreciative study of the blood-slide will give information that suffices for diagnostic purposes.

[1] "Ehrlich stain" (triple stain) is conveniently prepared as follows: Concentrated watery solutions of orange-g, acid fuchsin and methylgreen are made: 40 c.c. of the orange-g, 45 c.c of the acid fuchsin and 55 c.c. of methylgreen solutions are mixed with 50 c.c. of distilled water, 50 c.c. of alcohol and 15 c.c. of glycerin, and the mixture allowed to stand a week in a cool, dark place. This formula for making the stain has proved useful in my hands.

A very few words on the most practical method of preparing such a blood-slide and a short résumé of the morphology of the blood corpuscles, as we need to remember it for our purposes, must be given before we can proceed to the discussion of the value of blood-slide examination in general diagnosis:

Under ordinary aseptic precautions the ear-lobule of the patient is pricked with a clean needle, the droplet of blood that oozes out (no pressure should be exerted) is spread in a thin layer between two coverslips and allowed to dry in the air; in order to fix the blood on the slide and to prevent its being washed off in the subsequent manipulations, the slips are wrapped in paper and placed into a little copper box (usually called a blood oven) and heated to 110 C.—or they can be placed in a mixture of equal parts of alcohol and ether for twenty-four hours. A few drops of Ehrlich's triple stain are placed upon the coverslip and allowed to remain for about two minutes, then washed off with water, the slips dried between filter paper and mounted on a slide with a drop of Canada balsam. The slide is now ready for examination. The observations detailed in the following relate to the magnification obtained with a 1/12 oil immersion lens.

Fig. 1.

Fig. 2

Fig. 1.-Normal blood-slide corpuscles (purely diagrammatic). *a*, Showing arrangement of red-blood corpuscles in rolls, their uniformity of size and shape, the absence of a nucleus and the distribution of the hemoglobin normally. *b*, The central depression (side view of normal red corpuscle). *c*, Mono-nuclear leucocyte (lymphocyte) with homogeneous protoplasm. *d*, Polynuclear leucocyte with fine granulations. *e*, Polynuclear leucocyte with coarse granulations (eosinophile cell).

Fig. 2.-Pathologic forms of blood-slide corpuscles (purely diagrammatic). *a*, Showing diminution in number of red-blood corpuscles, abnormalities in size and shape, and decrease in hemoglobin of individual cell. *b*, Same abnormalities as *a* and showing nucleus. *c*, Myelocyte; this slide shows also a leucocytosis.

There are three kinds of corpuscles in the blood, the red (erythrocyte), the white (leucocyte), and the blood-plaque. The latter plays no rôle in diagnosis, so we describe the former two alone.

The *normal red-blood corpuscles* present themselves as round discoid elements with a central depression. They are arranged in rolls, have no nucleus, are uniform in size and shape, and their hemoglobin (with Ehrlich stain) is colored reddish-yellow, and forms a concentric ring around the central depression. Pathologically, five abnormalities must be observed: 1, they can be reduced in number; 2, they may have a nucleus; 3, they may present differences in size; 4, they may present differences in shape; 5, the hemoglobin of the individual cell may be reduced. All these abnormalities can be determined by a glance at the blood-slide; reduction in number by the fact that the blood corpuscles are not, or only in part, arranged in rolls, and appear as individuals; the presence of a nucleus by the appearance of a blue circumscribed body within the cell; changes in size and shape are apparent, and the reduction of the hemoglobin may be determined sufficiently accurately for diagnostic purposes by a narrowing of the

concentric red ring described above. A glance at Figures 1 and 2, which are purely diagrammatic, will elucidate this paragraph.

The characteristic features of the *normal white cell* or leucocyte are that it is larger than the red-blood corpuscle, has one or several nuclei, and a protoplasmatic content which may be homogeneous or have fine or coarse granulations. The nuclei are stained blue, the homogeneous protoplasm pink, the fine granulations violet, and the coarse ones bright red. A leucocyte with the bright red coarse granulations is called "an eosinophile cell."

The abnormalities observed are chiefly numerical, i. e., an increase relatively of all or a part of the different kinds of leucocytes. An increase of leucocytes is called "a leucocytosis"; if the leucocytes with several nuclei are increased, we speak of a "polynuclear leucocytosis." A simple method of determining whether a leucocytosis exists—one that does away with the tedious counting and is all-sufficient for diagnostic purposes—is the following: Normally, one leucocyte should be found on an average in every fifth field; when we find two or three in every five fields we speak of a slight leucocytosis, while one leucocyte to every field and more constitutes a severe leucocytosis. Many observations have been chronicled on the different forms of leucocytosis, but their diagnostic significance is doubtful. It is, for the present, sufficient to verify that an increase of leucocytes obtains; especial attention should be given to the absence, presence or increase of the above mentioned eosinophile cells.

A knowledge, appreciation and understanding of the above facts constitute our sole working material, and it is the object of this paper, in its essentially practical scope, to explain how, with this knowledge, a glance at a blood-slide may be of such paramount value in diagnosis. We are dealing with empiric facts, the exact interpretation of which in many instances must still be forthcoming. The most concise form in which the diagnostically important points can be presented will be the most useful; it is quite impossible, in the nature of the subject, to be systematic, as only a limited number of positive findings of diagnostic value are known in only a limited number of diseases.

Carcinoma of the stomach.—Normally, two or three hours after meals we have an increase of leucocytes in the blood, the so-called "digestion leucocytosis"; this is absent in carcinoma of the stomach. In carcinomata, further, we usually find nucleated red-blood corpuscles in the circulation. Therefore inversely, if we examine the blood of a patient presenting some of the clinical evidences of carcinoma ventriculi without permitting of an absolute diagnosis by clinical methods or the examination of the stomach contents, then the absence of a digestion leucocytosis or the presence of red-blood corpuscles with nucleus is a most valuable adjuvant to the diagnosis, a much more positive adjuvant than the presence or absence of hydrochloric and lactic acid in the stomach contents. A differentiation between carcinoma and ulcus ventriculi can also sometimes be made from the blood, in so far as the former is accompanied by a greater reduction of red-blood corpuscles than the latter.

Prediction of the crisis in pneumonia.—During the course of a pneumonia a great polynuclear leucocytosis is found in the blood, but no eosinophile cells—the chlorids, as we know too, are absent from the urine. Some twelve to eighteen hours before the crisis (clinically speaking) occurs, we find that the eosinophile cells re-occur in the blood and chlorids in the urine. If then, we examine the blood and urine of a pneumonia patient daily, from the fifth day on, and find eosinophile cells in the blood and chlorids in the urine, we may predict with absolute certainty a favorable crisis within twelve to eighteen hours. I have seen some most remarkable predictions of this character made in the Vienna Hospital, and have never so far been disappointed in my own practice. On the other hand, the absence of eosinophile cells and chlorids, after the disease has lasted some time, is always a bad prognostic sign.

The early diagnosis of complications and of the suppuration of intestinal ulcers in typhoid fever.—Polynuclear leucocytosis is absent in the early stages of typhoid fever; only when complications occur—pneumonia, nephritis, parotitis, etc.—do we get polynuclear leucocytosis; in the later stages of an uncomplicated case, the suppuration of intestinal ulcers, too, is accompanied by the same phenomenon. Inversely, we may suspect a complication if we find the polynuclear leucocytes increased in the blood.

Differential diagnosis between measles and scarlatina.—In scarlatina we find an increase of polynuclear leucocytes and the presence of eosinophile cells; in measles there is a decrease of leucocytes and an absence of eosinophile cells.

Differential diagnosis of purulent from simple serous or tubercular inflammations of serous surfaces.—In suppurative inflammations of serous surfaces we have a strong polynuclear leucocytosis and peptone (albumose) in the urine; in the other forms we do not. Thus we can readily differentiate an empyema from a tubercular pleuritis, a purulent endocarditis from a simple one, suppurative meningitis from the other forms, a gonorrheal from a tubercular joint or any other non-pyogenic form of arthritis, etc. The presence of obscurely located suppurating foci may in this way be definitely determined, and very frequently it is most valuable to have a clinical suspicion that "there is pus somewhere" verified by such a blood test; a careful search will usually discover the location of the abscess. It was my privilege in one instance to turn a diagnosis correctly in favor of abscess of the liver where other lesions of the liver or of adjacent organs could not be excluded, and the clinical diagnosis fluctuated between a variety of possible "tumors." On another occasion I was fortunate enough to make a correct differential diagnosis by this means between a pyosalpinx and a suspected ectopic gestation, in which I felt justified in excluding the pus-tube from the absence of a polynuclear leucocytosis in the blood and of albumose from the urine. In appendicitis, the formation of abscess or the incipiency of purulent foci of inflammation in the peritoneum can be recognized by this method; and I have at different times advised operation, and I believe wisely, on indications that the blood and urine gave us in addition to our clinical findings.

The so-called *diseases of the blood* proper, the anemias and leukemia, can be diagnosed through blood-examination alone. It is a useless task and would lead us too far to discuss the clinical features of these diseases in this paper, or to attempt to classify and subdivide, as to blood findings, the different forms of so-called primary and secondary anemias.

Secondary anemia per se is a symptom only which

may accompany a variety of primary conditions, viz.: carcinoma, sarcoma, syphilis, tuberculosis, intestinal parasites, the hemorrhagic diathesis, and may follow in the wake of infectious diseases, severe hemorrhages and the ingestion of certain poisons. The blood findings in this secondary anemia are varied according to the primary lesions producing the anemia, but nothing that is diagnostically valuable as to the nature of the cause can be deduced from the blood-picture.

Different the so-called primary anemias, chlorosis and primary pernicious anemia. Clinically they are very similar in their severer forms, and for prognostic purposes chiefly it becomes imperative to examine the blood carefully in these cases. The differentiation even here is not easy, and hinges practically on the following point: In both diseases, speaking of the severer form of chlorosis—the genuine myelogenic form only—we have a strong decrease in the number, and marked changes in the size and shape, of the red-blood corpuscles and, as a rule in primary pernicious anemia and sometimes in chlorosis, red-blood corpuscles with nucleus. The changes in the leucocytes are varying and diagnostically insignificant. The differential diagnosis lies exclusively in the differences to be observed relative to the hemoglobin. In both diseases the hemoglobin is reduced considerably, but while in primary pernicious anemia the hemoglobin of the individual red-blood corpuscles appears normal, or, if anything, increased, under the microscope, in chlorosis the hemoglobin is greatly reduced in the individual corpuscle, sometimes presenting an appearance to the eye of a very fine ring around the periphery of the cell only. (See Fig. 2.) Herein lies an absolute differential diagnosis between the two diseases, of great simplicity, the easy execution of which makes it most valuable. It does away with the tedious blood-counts and hemoglobin determination and gives, at least in my experience, results that are all-sufficient for clinical purposes.

Of *leukemia*, in the sense of this paper, we may speak briefly. The clinical symptoms of a case of leukemia are insufficient for a diagnosis, and a positive diagnosis of leukemia can not be made without a blood examination. We will not speak of the different forms that are described clinically, but simply mention that from a hematologic point of view we can conveniently describe two forms, viz.: mixed leukemia and lymphatic leukemia.

The former is a chronic disease, and gives a much better prognosis as to longevity than the latter, which runs a much more acute course and is probably of an infectious (tubercular?) nature, with an absolutely fatal prognosis. In mixed leukemia we find a "mixed" blood-picture, and the polymorphous character of the blood-slide is characteristic and diagnostic. All forms of polynuclear and mononuclear leucocytes in great number are found in each field, eosinophile cells, red-blood corpuscles that are decreased in number, changed in size and shape, with greatly reduced hemoglobin and containing nuclei. A special form of blood corpuscle, the myelocyte, can be mentioned here, as it is never found in normal blood; it is a leucocyte with one nucleus, with fine or coarse granulations, and about three times as large as a normal leucocyte. For practical purposes and rapid diagnosis a single glance will make the diagnosis, if we will simply think of the polymorphous blood-picture and the myelocytes.

Lymphatic leukemia, on the other hand, shows a very uniform field, namely, a colossal increase in the small mononuclear leucocytes—lymphocytes—that, as we described above, are also found in normal blood (about 28 per cent. of all leucocytes). Sometimes there are more of these mononuclear leucocytes than red-blood corpuscles; nucleated red-blood corpuscles are sometimes found, but they have no diagnostic significance. Counting red-blood corpuscles and leucocytes ,or determining the hemoglobin in this disease is a perfectly superfluous procedure and a pedantic loss of time.

Before concluding, it may be of value to speak briefly of the very interesting blood-findings in a rather obscure group of diseases that we call (falsely!) "*uric acid lesions*," or manifestations of the "uric acid diathesis." Some valuable observations have lately been published by Neisser of Vienna, which are of diagnostic value in the recognition of the *fons et origo malorum* of certain masked manifestations of the uric acid diathesis. It is an easy matter, comparatively, to diagnose gout and podagra, to discover a "gouty" nephritis or to find the cause of an attack of uremia, but there is a whole army of so-called minor ailments—headache, urticaria, eczema, "lithemic" conditions, certain forms of asthma, neurasthenic states, etc., the etiology of which is obscure. Urinalysis, though religiously executed and recorded, reveals nothing of value; but blood examination does, as follows: Around the nuclei of the leucocytes we find in these cases a series of little blue-black granules—the perinuclear basophile granulations of Neusser—that, as authorities on the subject inform us, are found in large numbers only in the uric acid diathesis. The explanation appears simple after Horbaczewski's recent publications on the genesis of uric acid from oxidation of cell-nuclein—the chief chemic constituent of the nuclei of the leucocytes. An exaggeration or perversion of this oxidizing mechanism, as it probably obtains in "uric acid" lesions, would readily explain the presence of these granules, which are looked upon as intermediate products in the oxidation process from nuclein to uric acid, if not as uric acid itself. Clinically, at all events, their presence can be used in diagnosis, and an anti-uratic medication and diet following this early discovery of the cause of the masked symptoms mentioned above will usually lead us to the goal. My own experience has strengthened my belief in these claims, and I look upon the discovery and interpretation of these granules as one of the most valuable recent additions to laboratory diagnosis. For the sake of rounding off this purely practical review, I need only mention the discovery of the *malaria parasites* and of the *Filaria sanguinis*, and our most modern addition to hemodiagnosis—Widal's typhoid test.

In conclusion, I wish to express my belief that a careful study of the morphologic changes as they occur in the blood in different diseases will undoubtedly bring us many more valuable discoveries in the diagnostic field. Our chief hope in this direction, however, lies in the study of the delicate biochemic changes that occur in the circulating fluid. Empiricism in this instance has preceded scientific understanding, just as empiric therapy by means of the blood has been given us before we have attained an insight into the histogenesis of the processes of cure.

Let us have a Department of Public Health!

IMPORTANCE OF EARLY DIAGNOSIS.

BY JOHN C. MORFIT, M.D.
ST. LOUIS, MO.

From both the scientific and practical standpoint, the diagnosis of a disease or ailment ought to be the most attractive factor in the practice of medicine or surgery. In any case the diagnosis is the foundation or base on which we build our plan of treatment and make our prognosis. It is the fulcrum on which moves the lever of judgment and logical deduction, that raises our unknown quantity into the light of scientific certainty. It is often asserted that any one who can correctly diagnose will have no trouble in treating the pathologic conditions with which he is confronted. I have as frequently heard the statement that scarcely over 50 per cent. of cases treated are accurately diagnosed. There may have been some foundation for the latter statement in former times, but certainly, today, there is less justification for its utterance.

There is still, however, too much empiricism. Nature is a wonderful doctor, and I would not underestimate her marvelous powers. She often finishes her work while we are striving to guide and influence her, but I maintain that it is both our right and duty to be cognizant of the why and wherefore of her action. We should know what she is doing as well as what we intend to do, in a given case. The doctor who wishes to guard his reputation as well as the very best interests of his patient, and who is imbued with the proper earnestness of purpose, and love for the science of his profession, is he who most promptly and exhaustively weighs every indication of cause and effect, and applies his therapy accordingly. Today, when specialism has advanced to the position of exactitude it now holds, when every organ opening on to the body surface can be brought under observation, when the bodily humors and excreta can be chemically and microscopically examined so quickly and thoroughly, when light can be made to penetrate through the tissues, there is little or no excuse why a reasonable, if not an absolutely certain, diagnosis can not be made in every instance.

Through simple instrumentation the large bowel is becoming more familiar to us every day, for we can view it directly as far up as the splenic flexure, and the stomach, too, is susceptible of illumination and instrumental investigation. The genito-urinary apparatus is plainly visible from the meatus to and including the bladder; it is palpable up to and including the kidney itself.

The sense of touch is being rather more exercised through the advent of these instruments of precision. Indeed, some instruments could scarcely be useful were they not backed up by a well-developed tactile sense on the part of the manipulator. Palpation alone is responsible for the correct diagnosis of many conditions, particularly of an abdominal or pelvic nature. Certainly today we are better equipped collectively if not individually, to make a diagnosis than ever before.

Now, as a rule, the physician, particularly the city practitioner, who has the advantage of every useful innovation, does not employ every available means to arrive at an early and positive diagnosis. In many of our public institutions a diagnosis is often not made for several days after the admission of the patient, and this often to his and others' serious disadvantage. I have seen tubercular subjects with acute exacerbations put into wards for the treatment of transient acute cases, as bronchitis or grip, and I have seen the latter develop tuberculosis, presumably because the intruder was not isolated, examined promptly, and properly classified. Specialists too often err in confining their observation to their own limited field. Thus, I have recently seen a weak, nervous, emaciated woman, who was promised complete relief after she had had repaired a lacerated cervix and perineum which, no doubt, ought to have been done. She was not relieved, however, until a more careful and general observer discovered unmistakable signs of gastric dilatation, for which she was treated, with much relief.

In my own practice I have lately had two cases of pyosalpinx which were cured after surgical interference. Both had been treated by estimable practitioners, but neither of them had made a complete physical examination, and consequently each was ignorant of the real trouble. One had been treated for a vague and indefinite "inflammation of the bowels," and the other for malaria. One case of tubercular peritonitis came to me from the country, diagnosed as ovarian cyst or pregnancy. The latter supposed possibility subjected the girl to much mortification and humiliation, all because the attending physician was not decisive in his deductions from the simplest and most significant symptoms. One eminent nose, throat and chest specialist recently showed me two cases which had been treated for frontal headache for over two years, by men prominent in their community, who failed to recognize the true cause of the incessant pain. The specialist found pus in the ethmoidal sinuses, and afforded complete relief by an intranasal trephining. It would have been far better for the patient, and much more to the physician's credit, had he consulted the specialist earlier and availed himself of the latter's special skill.

References to these cases is merely to emphasize the point I wish to bring out, viz.: the duty to ourselves and to our patients of utilizing every available means to arrive at an early and positive decision as to what we are treating. This available means may not, and often does not, lie entirely within ourselves.

It is impossible that any one man can be so skilled in laboratory technic, certain instrumental manipulations, and the activity of general practice, as one who devotes his time and energy to one or the other of these vocations. In other words, we should not make it a rule to diagnose our cases unaided. We must recognize more fully the superior ability in his own special line of the pathologist, bacteriologist, chemist, and often the specialist in other lines than our own, and let their opinions, as far as justifiable, influence us in reaching definite conclusions. We owe it to these laboratory men to reward their labors by a practical use of their peculiar talent, and they should certainly be more substantially encouraged than they have been in the past. In our college and hospital life we all learned the principles of chemistry and microscopic investigation and the handling of simple diagnostic instruments, as well as the amateurish investigation of all special fields, as the eye, ear, pelvis, etc.; and were reasonably well up, theoretically and practically, as far as the teachings of that day could carry us, but when we find ourselves subsequently unable to keep up with the rapid advance along all lines, and the revolutions that take place as the result of new discoveries, we are compelled to

confine ourselves to, and endeavor to become thorough and expert in, the field of our selection, while keeping a watch on the general progress, but not the details of other specialties.

Every practitioner of surgery should have an intimate knowledge of pathology and bacteriology in order to be a well-rounded scientist, but in practice it is better and safer, as a rule, to seek the aid of the expert in these branches. Let us be specialists, if we must—and I believe we surely must—for revenue and for fame, but let us be amateurs in the laboratory sciences for pleasure and recreation.

Many men look on consultations as a reflection on their ability, but happily this idea is fast passing away, and conferences are becoming more frequent. Keep well up to the front in your own specialty, and use any spare time you have in keeping as well up as possible in other lines, but acknowledge the right of specialists in lines not your own to your respect and indorsement. In occasional cases we are at a loss to know just what is the matter, in spite of the fact that we conscientiously made every possible effort to find out, but we have done our duty and elicited enough facts to indicate that the trouble is one of a couple or trio of affections. This pardonable uncertainty often determines us on a line of treatment which would be indicated in any one of the possible conditions present, so that, as far as the patient is concerned, the right thing is being done, regardless of the uncertainty.

Statistics show that the mortality of certain diseases increases directly as the time of application is deferred. For instance, the mortality of appendicitis is excessively greater when the operation is done on the third or fifth day of the attack than when done on the first or second day. The same may be said of the antitoxin treatment of diphtheria. Therefore, I conclude, it should be our aim to arrive at a correct diagnosis and apply our treatment accordingly, at the earliest possible moment consistent with the means at our command.

HYPERTROPHIC CATARRH OF MIDDLE EAR.

Presented to the Section on Laryngology and Otology, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY BURT D. LA FORCE, PH.G., M.D.

OTTUMWA, IOWA.

Although this is not classed as a suppurative disease of the middle ear, it may be the result of the vascular turgescence produced by pyogenic infection of these parts. It has been proven that there is no pathologic difference other than that of degree between acute suppuration and acute catarrhal otitis media. The resisting power of the organism or the great amount of infective material present determines whether the process will appear as a catarrhal or a suppurative process. Since vascular turgescence, hyperplasia and sclerosis are almost always associated to some extent with hypertrophic catarrh of the mucous membrane of the middle ear, they must be considered in any discussion on this subject. There are cases where hypertrophy of the mucous membrane of the tympanum seems to be the predominating result of vascular turgescence of these parts. Some cases of vascular turgescence and hypertrophy of the middle ear progress slowly, while others develop more rapidly to a state of hyperplasia, sclerosis or cicatrization. To foretell whether the progress will be slow or rapid is often quite difficult, although it may be done in many cases.

If the cause of the vascular turgescence and hypertrophy is diphtheria or scarlet fever, or when the cause is a long-continued pyogenic infection where the resisting power of the organism is lowered, or when there is a rheumatic diathesis existing, or if the inflammation is influenced by a syphilitic or tubercular diathesis, there is much danger of the inflammation rapidly progressing to a state of hyperplasia, sclerosis or cicatrization. If the cause of the inflammation is a muco-purulent discharge which finds its way to the tympanum from a chronic inflammation of the posterior nares, and if the patient is otherwise healthy, or if the inflammation is due to a rheumatic diathesis with the exciting causes of rheumatism unassociated with other pathologic conditions of the body, the result of the inflammation will probably be a hypertrophy of the mucous membrane which, in most cases, slowly progresses to a state of hyperplasia, sclerosis or cicatrization.

The deafness and uncomfortable sensations in the ear and the inflammation of these parts, from whatever cause, are greatly increased by the air in the tympanum becoming rarefied. Rarefaction of the air in the tympanum may be produced mechanically, in two ways: 1. By the closing of the Eustachian tube by secretion, adenoid vegetation in the posterior nares, by hypertrophied condition of the posterior portion of the turbinates, by polypi, or by a simple congestion of the mucous membrane of the tube. The air remaining in the tympanum is partly absorbed by the blood-vessels, leaving it rarefied. 2. By sniffing the air through partly closed nostrils, which is a pernicious habit many ear patients have; or simply breathing through partly closed nostrils draws part of the air from the tympanum, causing the air to become rarefied.

When the air becomes rarefied in the middle ear on account of removing the air-pressure from the inner side of the drumhead, the air-pressure from without causes a retraction of the drumhead with all of its untoward results. The habit of drawing the air from the tympanum by sniffing or quickly drawing the air through partly closed nostrils, not only causes a retraction of the membrana tympani by rarefying the air, but it will directly draw the membrana tympani toward the posterior wall of the tympanum.

The patient with pure hypertrophy of the mucous membrane of the middle ear complains of a fullness and numbness in one or both ears. Unless there is an acute exacerbation of the disease there is little or no pain, and when the Eustachian tubes are patulous the tick of a watch can be heard ordinarily at two or three feet. There is little or no diminution of bone conduction. The cracking sounds that are so often complained of are produced by the separation of the walls of the Eustachian tubes or separation of the membrana tympani from the posterior wall of the tympanum. Viscous mucus secretion may stretch across the tympanum, and breaking, may produce a snapping sound. The movement of the jaws or movement of the head may disturb the secretion in the tympanum or Eustachian tube, thus causing a sense of something moving in the ears. Confusion of ideas and of speech may be produced if these symptoms be kept up, as may also an irritable temper. Autophony may be one of the annoying symptoms of this variety of

inflammation of the tympanum. A dizzy and giddy sensation may be produced by pressure on the labyrinth of an abundance of secretion in the tympanum. Children having this disease do not often complain of tinnitus aurium, although in many cases of the disease occurring in patients old enough to describe the sounds produced, they complain of many peculiar noises.

The membrana tympani may be apparently normal or may be opaque and retracted. The position of the handle of the malleus may be in a more horizontal position than normal. The reflex of the light, if the membrana tympani is not opaque, may be seen displaced from its normal position. There may be a perforation of the membrana tympani, it having occurred during an acute attack of inflammation. There is an abundance of mucus, and at times muco-purulent secretion present, which often may be seen through the drumhead if it is still semi-transparent; or, if there has been a perforation in the membrana tympani, the secretion may be so abundant that a little of it, especially during an acute exacerbation, may be seen discharging from the perforation, or if there is not enough to discharge through it, it may be seen in the perforation. The membrana tympani may be thinned and seen bulging externally. This bulging of the membrana tympani is frequently produced by blowing the nose so often and hard as to force the air through the Eustachian tube against the inner side of the drumhead.

I can recall a patient who had for years practiced a procedure which almost reverses Valsalva's method of inflating the tympanum. The patient said that when he wanted to hear distinctly he would make a quick pass of one hand to the nose, partly closing the nostrils, and at the same time he would quickly draw the air in through the nose. This he claimed would partly relieve a full feeling in his ears, and help him to hear more distinctly. On examining the patient's membrana tympani while he would make such a pass with his hand, the part of the drumhead below Shrapnell's membrane could be seen to retract very perceptibly, looking as though it was retracted against the posterior wall of the tympanum, but Shrapnell's membrane seemed to bulge outward almost as much as the lower part retracted. I advised the patient to reverse his breathing when he threw his hand to his nose, and under this treatment for about three weeks he was able to abandon any form of treatment. Up to this time, almost four years, he has had no recurrence of his ear trouble. This patient had been having this very uncomfortable ear trouble for six years, and unless he would press the nostrils together and quickly draw in the air he was tormented with noises in the ears like "hooting of owls."

It is to be regretted that the majority of persons do not come to the physician for advice until the disease has lasted so long that the symptoms of hyperplasia and sclerosis have taken place. The great majority of cases that we see are in children during an acute exacerbation of the disease. Physicians and the laity are more clearly recognizing the causes of deafness and are not attributing so many cases to heredity and giving up all hope of good results from treatment.

To properly treat these cases and to prevent their recurrence requires a most careful study of each individual case. In many cases simply removing the nasopharyngeal catarrh will be all that is necessary to cure and prevent a recurrence of the disease in the tympanum. If we can prevent or destroy what we might call a garden in the posterior nares, which so often nurtures so many kinds of germs which find their way to the tympanum or lungs, we will be helping these patients materially to retain not only good ears but better lungs, and, therefore, stronger constitutions. While it is true that nature does remove these growths, and destroy the garden for the germs, and finally remove the obstruction to the lungs and ears, many times before this has been accomplished great and lasting harm may have come to the neighboring organs, and it is our duty as physicians to surgically interfere in these cases. We should be diligent in searching for and treating any underlying diathesis that so often is such a factor in the production of hypertrophic middle ear catarrh.

The hygienic and sanitary surroundings of a patient with this disease should be perfect. The history of all cases having adenoid vegetation in the posterior nares shows them to have been produced at a very early age. While certain diatheses apparently influence these growths, many times they seem to be produced by the parts being almost continually bathed in a secretion full of pus, microbes and poisonous ptomains. Children should be taught early how to blow these discharges from the nose without blowing the secretion into the tympanum, and so that the parts in the posterior nares will be in a more healthy condition. The Eustachian tube should be kept patulous and the tympanum properly aerated by the use of the compressed-air apparatus, Politzer's air-bag or Valsalva's method, but the secretion at the mouth of the Eustachian tube, and in the posterior nares should be discharged or wiped away before the tympanum is inflated and not enough force used to rupture or cause too much bulging of the drumhead. It is not advisable to use any form of inflation of the tympanum when there is an acute inflammation in the tympanum or posterior nares.

If the posterior nares is kept free from secretion and S. S. Bishop's method of auto-aspiration of secretion from the tympanum is practiced, it will seldom be necessary to perform paracentesis of the drumhead to remove any secretion within the tympanum unless there is an acute exacerbation of the disease.

S. S. Bishop's method of auto-aspiration of the fluid from the tympanum, by closing the nose with thumb and forefinger and drawing the air from the nasopharyngeal space down into the throat very frequently removes much of the secretion from the tympanum. He recommends having the patient incline his head forward and a little to the opposite side and practice an experiment that just reverses the Valsalvian method. This process of auto-aspiration is performed almost every time one sniffs the air quickly through partly closed nostrils. It is not necessary to have the nostrils completely closed to aspirate air or secretion from the tympanum. Patients having ear trouble of any kind should be warned against this pernicious habit of auto-aspiration of the air and secretion from the middle ear, and only do it often enough to remove the secretion from the tympanum. Just after this auto-aspiration of the fluid and air from the tympanum is practiced, the secretions should be discharged from the posterior nares or wiped away from the mouth of the Eustachian tube, and then some form of inflation of the tympanum should be used, as this process of auto-aspiration, as has been previously stated, causes

a rarefied condition of the air in the tympanum and a retraction of the membrana tympani.

The pneumatic otoscope may be used by the physician sufficiently to prevent any adhesion of the membrana tympani to the posterior wall of the middle ear and to insure a normal movement to the ossicles. But in this particular variety of inflammation massage of the membrana tympani by any method is not so important as in sclerosis of the middle ear.

ISCHIORECTAL ABSCESS.

RECTAL FISTULA IN ITS CAUSATION—REPORT OF A CASE WITH TWO LARGE PUS-POCKETS.

Read before the Mississippi Valley Medical Association, at Nashville, Tenn., Oct. 11-16, 1898.

BY WM. BRITT BURNS, M.D.
DECKERVILLE, ARK.

I am aware that it is maintained that ischiorectal abscess is an etiologic factor in rectal fistula rather than the reverse; indeed, I am convinced that in the main it originates from an untreated or improperly treated abscess, an abscess that has been punctured instead of having been widely incised, but for my purpose it will be only necessary to affirm that in the case I desire to direct attention to, the abscess was set up or reignited, if you please, by a rectal fistula of two years' standing.

S. T., a colored woman, aged 40 years, called on me one Sunday afternoon about 4 P.M., to lance a boil. She gave a history of having had a similar trouble two years before, but she had drawn that to a head and it opened itself; it would get better and then worse again; this condition of affairs continued with never more than a small discharge coming away, until about six months previous to consulting me, when the discharge ceased and she thought she was well. On examination I was particularly struck with an excrescence just to the right of the anus, not unlike a rudimentary pig-tail, and upon closer observation, could make out that this excrescence was provided with a caliber. The diagnosis of fistula was plain. I did not attempt to find the other end of the fistulous tract, because the swelling was so great and the parts were so intensely painful that I did not care to inflict unnecessary pain upon the poor sufferer. As I have stated, the swelling was great, the most prominent symptom in fact; there was such a swelling that the rectal and gluteal folds were obliterated, the rectum was pressed closely upon the left ischium and temporarily obliterated the ischiorectal fossa, the right labia majora suffering a similar infringement. The diagnosis of abscess was also plain.

I stated to the patient that I could give her relief temporarily by opening the abscess and emptying the cavity well, but she should have an operation done for removal of the fistula, if she would have a radical cure. I believe all will agree with me that this procedure is correct. But in this particular case I would have failed on the first proposition, as I will state a little further along. She would have none of it. After suffering the tortures of the condemned for so many hours, that were evidently days to her, on Monday evening she called me and consigned herself to my care and keeping. I gave her two compound cathartic pills to be taken at bed hour and instructed that she should not eat anything for breakfast, that she be given a thorough bath, and an enema of a half gallon of hot water and two tablespoonfuls of glycerin, and that I would operate at 10 A.M. the next day.

Promptly at the appointed hour, with the assistance of Dr. Waldron Abernathy, who administered the anesthetic, and three or four negresses, who took their turn in "falling out," a term used among the negroes of the South to designate any condition that renders a person *hors de combat*—from nausea to extreme syncope. Suffice it to say, I did the cutting, sponging, and most of the holding.

Putting a grooved director into the pipe stem, I cut down upon it with the edge of the knife into the ischiorectal fossa, cutting wide and deep. Then, after an enormous quantity of foul pus had poured out and a copious bichlorid solution had been played over the exposed surfaces, with scissors and sharp curette I extended the cavity back to the sacrum, outward to the ischial tuberosity, and forward to the upper extremity of the labia majora, removing all the bluish spongy-looking tissue that is found in an ischiorectal abscess—and I do not remember to have seen this condition in any other locality—a tinge that it appears to me is given to these tissues by the gases from the rectal pouch coming through the fistulous opening. I have always allowed the extent of this smoky or stained tissue to govern the extent of my operation. I am in the habit of removing every vestige of this colored and rotten tissue in whatever direction. After extending the wound as mentioned before, I likewise, with finger and curette, went to an alarming depth, removing the bluish spongy tissue described above, and cutting down hillocks to fit the valleys, if you please, to a smooth surface. It may be well to state that there were no tributaries to the fistulous tract, which tract was obliterated entirely by scissors and curette, the end opening into the gut being closed with two ordinary interrupted catgut sutures. The wound being thoroughly cleansed was now to all intents and purposes ready for the dressing.

It occurred to me to make one more survey of the upper part of the cavity; I swept my finger into the apex of the wound—the wound described a pyramid, base downward—and, though all the bluish spongy tissue had been removed, I felt it give, and to my surprise, indeed, horror, a full pint of very foul discolored pus poured out and over my wound. I was in despair. I was afraid I was into the pelvic cavity. I had the misfortune to have been initiated into rectal surgery on a case of ischiorectal abscess that communicated freely with the pelvic cavity—a fatal one. If I was not into the pelvic cavity, I was, I feared, so close to it that infection of that cavity might prove a strong probability. After again curetting and washing out the wound with a hot bichlorid solution, I inspected closely and found there was yet a barrier to the pelvic cavity. I was relieved. The wound was then packed with iodoform gauze and covered with a large pledget of cotton and a T bandage was put on. The wound was similarly dressed every day for two weeks, then every other day for four weeks; after this the patient was discharged to care for the wound herself, which I was persuaded she would do admirably.

The cicatrix extends—at this date, after a full recovery of eight months—from a level with, and one inch to the right of, the tip of the coccyx to the middle of the right labia majora, a straight white line, presenting the appearance of having united by first intention, with a little puckering at a point between the ischial tuberosity and anal opening.

It will be noted that this extensive cutting operation—indeed I believe it is designated a capital ope-

ration by Professor Matthews of Louisville—was done outside the sphincter muscle. I have neglected to say that the sphincter was divulsed early in action, and it might be of interest to mention that a Matthews' speculum—that being the instrument used—was broken in doing so, so strong was the sphincter muscle.

I shall not conjecture what would have been the outcome if I had left that second pint of pus in this patient a few hours longer.

THE ARTHRITIC DIATHESIS.

BY R. ALEXANDER BATE, A.B., M.D.

CHIEF OF THE MEDICAL CLINIC AND ASSISTANT TO THE CHAIR OF THE PRINCIPLES AND PRACTICE OF MEDICINE AND CLINICAL MEDICINE, HOSPITAL COLLEGE OF MEDICINE, LOUISVILLE, KY.

The term "diathesis" is applied to an inherited predisposition to alterations of nutrition. Nutrition consists of the transformation of non-living molecules into living cells (assimilation) which undergo chemic changes with oxygen (reaction), producing waste material that in time is thrown off to make room for fresh cells (disassimilation). Nutrition is controlled by the nervous system, and is modified by age, sex, climate, food, geographic and geologic position, occupations, manners and customs, hygienic conditions, variations of light, heat, moisture and atmosphere (environment). Continuous subjection to any of these conditions modifying nutrition becomes apparent in the progeny of individuals; and this functional alteration of nutrition, causes a predisposition to pathologic conditions, or a pathologic condition itself, known as diathesis.

Bouchard defines "constitution" as including all that is concerned with the structure and framework of the body; while the word "temperament" includes everything that pertains to the individual characteristics and functional activity. Constitution and temperament are the gifts of heredity, and, either healthy or morbid, are transmitted from parent to progeny. Hence diathesis is morbid temperament.

Two diatheses are admitted: scrofula, or a predisposition to tuberculosis, and arthritism, or a predisposition to certain diseases characterized by retardation of the processes of nutrition. The latter is for our present consideration. The alterations in arthritism are purely functional, consequently there is no morbid anatomy. Since there are disturbances in which the retrograde changes produce a persistent increase in the products of disassimilation, such as uric and lactic acids; and since, in some instances, in spite of diet and exercise, these materials are formed, we must assume that in this diathesis there is an inability on the part of the cells to produce oxidation, even when the necessary articles are furnished.

The various manifestations of arthritism are those forms of arrested metamorphosis characterized by the presence or excess of organic acids. Some of the acids are volatile, and are eliminated by the skin and lungs; some may remain in the blood or be stored in the tissues; some effect changes by increasing acidity, while others unite with bases and do not affect the relative reaction of the fluids. Consequently, we have the manifestations or symptoms of arthritism varying according to the stage at which metamorphosis is arrested and according to the character and consequent retention or channel of retention. Thus uric acid, the most prominent product of disassimilation, causes one class of diseases when it is in solution in the blood, and another totally different class when it is precipitated into the tissues.

The diseases generally conceded as dependent upon the arthritic diathesis are: acid dyscrasia, rickets, osteomalacia, obesity, lithiasis, embracing biliary, renal and pancreatic; diabetes mellitus and insipidus; rheumatoid arthritis; articular and abarticular rheumatism; gout in all its phases; the constitutional insanities, anemia, eczema, neuralgia, migraine, arteriocapillary fibrosis; nasal, bronchial and cardiac asthma, hemorrhoids, biliousness, dyspepsia, paralysis, neurasthenia, hysteria, epilepsy, Reynaud's disease, albuminuria and Bright's disease.

In other words, as has been taught for some time, diseases may be divided into two classes, those having an external or foreign cause, as the microbic diseases, those having an internal or auto-cause, as those due to errors of metabolism. In the microbic type the oxygen is extracted from the blood by the foreign sources; in the metabolic type functional alteration or deficiency lessens oxygenation. Haig and Bouchard likewise strongly suggest that the action of drugs depends upon their power of increasing or diminishing this or that step of metabolism. Various forms of auto-intoxication are paralleled by the reaction from certain alkaloids.

In the first-mentioned manifestation of the arthritic diathesis—acid dyscrasia—there occurs during the process of oxidation a number of organic acids, such as uric, hippuric, oxaluric, oxalic, lactic and its derivatives, caprylic, caproic, valerianic, butyric, propionic, formic, acetic, stearic, oleic and palmitic, resulting from the incomplete oxidation of nitrogenous, saccharine, starchy and fatty substances, also from cholesterin, from the pancreatic juice and peptones and from glycocoll. Those formed in the alimentary canal, as lactic, its derivatives, etc., become absorbed and pass into the circulating liquids of the body and the tissues, where they undergo more or less transformation and elimination through the excretory organs. Carbonic and uric acids are usually combined with bases, and do not by their presence increase acidity in the tissues. Formic, acetic, butyric and several other volatile fatty acids are eliminated by the skin; butyric and cholalic also with the feces; renic, hippuric, oxaluric, carbonic, taurylic, damaluric, damalic, succinic and oxalic acids with the urine. Hydrochloric acid may exist in excess in the stomach, but more frequently the acidity is produced by the presence of some of the organic acids, as a consequence of fermentation induced by the presence of microphytic ferments.

In rachitis the primitive blood change is believed to be an excess of lactic acid, which holds the phosphate of calcium, etc., in solution, thus preventing the formation of infantile bone. Osteomalacia, on the other hand, occurs in the adult, and an excess of lactic acid dissolves the already formed bone. Obesity seems directly dependent upon oxidation. In addition to fat formed directly from food, there is a certain amount formed during retrograde metamorphosis, both of the nitrogenous and albuminoid constituents of the tissues. Obesity occurs in the anemic, on account of the diminished blood-current being insufficient to carry a normal amount of oxygen; likewise in the paralyzed, the nerve-cells being deficient. Oxidation of emulsified fat is more difficult than of the saponified, consequently arrest of the action of

the pancreatic juice by the too acid contents of the stomach being passed into the intestine causes fat to be stored up. Diabetes mellitus we find alternating with obesity and following osteomalacia when the latter has received the benefit of improved hygiene or increased oxidation. In diabetes insipidus probably the nervous system is first affected by retention of uric acid, since we have the disease following lead and alcohol poisoning and sudden refrigeration of the body, which things Haig has shown favor the precipitation of uric acid by raising the acidity of the blood. Dilatation of the capillaries of the kidneys may be the immediate result of mechanic obstruction in the form of the precipitated uric acid in the arterioles.

In biliary lithiasis the cholesterin becomes precipitated from the bile, when the calcium salts unite with the organic acids to form insoluble salts. Renal calculi result directly from the acids, uric acid being the most frequent form. Pancreatic calculi are dependent upon the precipitation of the calcium salts from an acid medium.

Rheumatoid arthritis, according to Haig, is one stage of the same condition known as gout. He reported a postmortem at St. Bartholomew's Hospital in which Sir Dyce Duckworth observed rheumatoid changes, that is erosions without urates, and gouty changes or erosions with a deposit of urates in the joints, in the same cadaver. In the rheumatoid joint the urates had been dissolved out and eliminated in the urine prior to death. Rheumatism, gout and valvular disease of the heart are produced by the deposit of the urates in the tissues, which is caused by increased acidity of the blood. Asthma, cephalalgia, epilepsy, arterio-capillary fibrosis and all the other conditions are dependent upon uric-acidemia, which increases arterial tension and affects the interstitial circulation of the various organs and tissues.

In speaking of these diseases as dependent upon arthritism, it is not meant that no other causative factor exists, or that these diseases may not be acquired, but that the essential condition corresponds to the "arthritic diathesis." Bouchard says: "The reaction of a disturbed nervous system, by corrupting for the moment nutrition, can produce morbid opportunity, and may modify nutrition in a lasting manner and develop an acquired diathesis. The acquired diathesis, once established, may become transmissible." Horbaczewski has shown uric acid may be derived from nuclein. Haig believes a proportional amount of urea is also derived from nuclein, and the uric acid and urea are always formed in the system in the proportion of 1 to 35 or 40. If a less proportion of uric acid is eliminated, it indicates that uric acid is being retained in the tissues. If a greater proportion is being eliminated, it indicates uric acid previously stored up is being dissolved out.

Since uric acid is so frequent a factor in disease, the treatment must embrace such measures as free uric acid from both the blood and the system. In general the treatment is dietetic, hygienic and medicinal. Haig says "the one thing needful is a proper diet," and restricts all red meats, coffee, tea and eggs. Breads, milk, vegetables, fruits and nuts are permitted.

In rickets and osteomalacia, however, that food richest in phosphates should be selected, that is eggs, fish, cracked wheat and oatmeal. Strawberries, tomatoes, bananas and excessive saccharine materials are generally harmful in the uric acid diseases.

The hygienic treatment consists of outdoor exercise, mountain-climbing, sea voyages, baths and massage, to increase oxidation. Flannels should be used to prevent sudden refrigeration of the surface. A dry, warm climate should be selected. The medicine should vary according to the individual type of the disorder. The salicyl group is the best to eliminate uric acid from the system, the iodids to remove it from the blood and to lower arterial tension. Hence, the prognosis in such disorders as glycosuria, albuminuria, asthma, lithiasis and the arthropathies, when observed before morbid changes occur, is much better than the former uncertain results permitted. Cells once destroyed are not replaceable, but since, by exercise, diet and the uric acid solvents, we can prevent the further destruction of cells, the disease may in many instances be arrested.

Good results from antilithemic measures in the disorders of arthritism are reported by such observers as Lyman, Potter, Shoemaker, Wilcox, Oleve and Hunter, Bigelow, Satterthwaite and many others too numerous to mention. Personally, I have experienced favorable results from antilithemic remedies in glycosuria, nasal and bronchial asthma, lithiasis, albuminuria, obesity, eczema, paresis, rheumatism, angina pectoris, recurrent typhilitis, vertigo, biliousness, dyspepsia, neuralgia and migraine.

THERAPEUTICS OF COAL-TAR PRODUCTS[1].

A CLINICAL REPORT.

Presented to the Section on Materia Medica, Pharmacy and Therapeutics, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY W. R. INGE DALTON, M.D.

Member American Medical Association, New York County Association, Medical Society County of Kings, and New York County Medical Society.

NEW YORK CITY.

Ægrescite medendo: "The medicine increases the disease," is an appropriate motto for the introduction of this paper, for by the unskillful exhibition of coal-tar products in disease great harm has resulted. The immense and very extraordinary development of synthetic chemistry has exerted a profound influence upon the medical practice of recent times. The German school has inundated this side of the water with their synthetic compounds—legions of them have been introduced—we have been bombarded with discoveries of new organic compounds by the organic chemist, all purporting to possess marvelous and rare virtues, and foisted upon us with the brazen assurance that they open up vast possibilities of therapeutic application. Is it not time to call a halt upon the arrogant assumption of these foreign proprietors of synthetic drugs who dictate to us with such unblushing effrontery, and give the older medicine as chance? I lift my voice against the indiscriminate use of coal-tar products, and assert that more harm has been done by the use of antipyrin, phenacetin, laotophenin, acetanilid, etc., than any good derived by their exhibition. True, they reduce temperature, but at what expense to the economy! How do they exert such a reduction? Antipyretics do so, either by lessening the generation of heat, or by aiding the operation of its loss through radiation—the labor of evaporation of perspiration and conduction. Those remedies which lessen oxidation, which depress the

[1] Original abstract of the paper read before the American Medical Association.

circulation, or which produce a specific corroborant influence upon the heart center, reduce temperature, thereby diminishing heat production, while those which dilate the vascular (cutaneous) system cause the thermal loss. Antipyrin, phenacetin, lactophenin, and their congeners do certainly increase radiation by circumscribing the tissue metamorphoses. As high an authority as Shoemaker—and in my opinion there is none higher—states that phenacetin is not toxic in ordinary doses, but I have had some cases to whom I administered it which caused me great anxiety. One, in particular, a woman suffering from dysmenorrhea (congested form), to whom I gave four 10-grain doses, four hours apart, had alarming prostration, uncontrollable emesis, vertigo, profuse perspiration, with urticarial rash and deep cyanosis. Possibly, however, I may have used an impure product, made by imperfect conversion of paraphenacetidin into phenacetin. Lately, I have tried lactophenin, a closely-allied product to phenacetin—with better results. Still, I was not entirely pleased with it, as it acted on the heart too strongly. The best one of the lot, which has given me entire satisfaction in dysmenorrhea and typhoid fever, is ammonol. It reduces the temperature without exerting any depressant cardiac action; on account, I suppose, of ammonia, with which it is combined. Dr. Francis E. Stewart, chairman of the National Legislation of the American Pharmaceutical Association says that practically all synthetic compounds are foreign made, and their manufacturers or agents have secured letters patent for the processes of making, or copyright protection of their names. In nearly all cases, not an ounce is made in this country; no native industry is protected, but a foreign made product is imported through an agent to whom the sick of the country are made to pay tribute. Were these agents content to accept reasonable profits there would be less ground for complaint, but when phenacetin sells in Great Britain for $1.25 a pound, and in the United States for $1.00 an ounce, the tax on the public becomes burdensome, and the ruling of the patent office, which makes such a condition of affairs possible, demands protest.

If I have succeeded in impressing one member of my beloved profession with the necessity of using circumspection in exhibiting these coal-tar products indiscriminately, then I am content, and I feel assured that then the afflicted may exclaim, "*Ægroto dum anima est, spes est*," for then, indeed, "to the sick while there is life there is hope."

THE RADICAL TREATMENT OF DISEASE OF THE HIP-JOINT.

Presented to the Wyoming State Medical Society, Nov. 1, 1898.

BY CHARLES G. PLUMMER, B.S., M.D.

SALT LAKE CITY, UTAH.

During the past two or three decades we have learned much in the treatment of disease of the hip-joint. Some of our knowledge is the direct result of years of research, yet more has the freshness and nearness of the teachings of men of our own age. The equipment of recent graduates in the theoretic treatment of this class of ailments is immense, but what they lack is the illustrated application. This we call experience. It is that something which we do not attain didactically—it only comes by personal contact. This fact holds equally good with almost any subject we might mention, but it is especially impressed upon our minds with reference to surgical procedures. There was a time—and it is not so far in the past that we can not witness living examples of the fact—when cases of hip-joint disease went unrecognized. I do not say they do not go without recognition today—I wish I could. But, with the advent of new ideas, new methods have taught us more of the subject, and now fewer cases are overlooked than at any time in the history of surgery.

Much valuable time is lost in many cases by the diagnosis of rheumatism or "growing pains," and I am compelled to admit, in deference to those who treat the condition in its early manifestations from that standpoint, that their error seems excusable, for there is quite a similarity, in a general way, in the very early stages of the seizure. But when such a diagnosis is made and treatment instituted and maintained, where the cardinal points which go to make up the diagnosis of hip-joint disease are in evidence, the mistake is culpable. To be sure, neurotic reflexes with symptoms referable to the region of the hip and knee, such as preputial adhesions, anal fissures, or rectal ulcerations, have misled many most excellent men. I believe it is the search for some of these little things wherein lie our most pronounced successes. With their removal, or the elimination of their possible existence, our diagnosis is so much easier. Still, when we take into consideration the fact that the great majority of these cases occur in childhood or early youth, we may be pardoned when we say we sometimes meet cases wherein a diagnosis is not easy.

Children are so apt to magnify their ailments, they are often so unmanageable and reticent that our diagnosis is almost wholly subjective. It is sometimes impossible to conclude positively that we have morbus coxarius, from a single inspection and examination. It will pay us to keep the suspected case under close observation, seeing it perhaps every few days, with instructions to the family to look for certain prominent symptoms, upon which we are to base our conclusions. We may not observe in any one case all the pathognomonic signs of the disease, still when we see the marked flexion and abduction of the limb, either in the prone or upright position, the limited motion, the apparent ankylosis at the hip, night pains and pains referred to the knee, we can not miss it much by pronouncing it coxitis. Perhaps the subject has suffered some traumatism, perhaps not—it does not matter, for whatever the cause, the treatment is identic.

In coming to the question of treatment, I wish to state that I believe all the successful methods of treating hip-joint disease today may be termed radical. That there are degrees of radicalism we can not deny. Looking upon the results of treatment of these cases in the hands of some whom we might term antiradicals, or extremists in conservatism, I am not much impressed with the wisdom of their medico-supportive and expectant methods. The physician who allows a case to progress so far as to permit of the formation of abscess in or about the region of the hip-joint makes a grave error. And one who has not seen cases of advanced disease of the joint will find that he is totally unable to appreciate the terrific ravages such abscesses will commit. Extensive suppurative sinuses will penetrate the deeper structures of the hip and thigh, extending in some cases down the leg to the knee, forming large

bulging pockets of pus in the popliteal space, or above the patella; or they will burrow beneath the gluteal muscles across to the other side, or come out under Poupart's ligament, or through the ischiorectal region. And just as sure as hip-joint abscess develops, deformity in some degree may be expected.

My experience has taught me that every deformity — by which I mean modified or absolute ankylosis with shortening resulting—is due either to abscess, or neglect and deferred treatment. Why is such deformity in evidence? Often because of the expectant and medicinal treatment of misguided conservatism. Do not misunderstand me, please, for I believe in every endeavor to prove the value of conservative measures; but there comes a time when conservatism is not a synonym for good sense, when delay is dangerous, when hesitancy loses the day. For just such cases as these radical surgical procedure is necessitated. Radical treatment means the institution of active surgical measures, as opposed to the delay, linger-and-wait methods of the ultraconservative. My interpretation of radical advances begins with the use of injections of emulsions of iodoform, iodin, or any other drug into or about the joint cavity; or with extension alone; or with extension combined with hypodermatic injections at the site of the disease, of Vaughan's nuclein solution; or with resection of the head of the femur and thorough removal of all evidences of the disease.

I have purposely refrained from saying anything about the etiology of hip-joint disease, for I am certain we are a unit on that subject, if not entirely so on that of treatment. My reading and my own experience convince me that morbus coxarius has its origin in the tubercle bacilli; hence it is merely a circumscribed tuberculosis. It does not matter whether there be a cachexia or not, or whether it result from a traumatism, I believe the cause always the same. One may not always be able to demonstrate the tubercle bacillus, he can not find it every time he examines the sputum of a tuberculous subject; nevertheless, the existence of foci of disease absolutely characteristic in every particular proves the origin to be one and the same.

While the name "hip-joint disease" is used to designate a tubercular inflammation of the hip-joint, it may have its origin in any one of three places: first, on the femur, called epiphyseal; second, acetabular; and third, arthritic, or synovial. The place of its origin has something to do with its treatment later. If it begins, as is usual in the majority of cases, among children especially, in the epiphysis, the treatment must be more rapidly enforced, and of a much greater degree of severity. For my own convenience, I have divided radical measures into three classes: 1, injections of drugs into or about the joint cavity; 2, the employment of extension; 3, resection of the head of the femur.

In the first and second classes, as I have already indicated, we may use a combination of methods to suit the exigencies of the case, and to promote the best results. For instance, one would not give intra-articular injections of iodoform emulsion and allow the patient to perform his ordinary duties, because rest is one of the first considerations. So with a judicious use of the very best means combined, it becomes our function to save the vast majority of cases from the dreaded fate of the last degree of radical surgical procedure, viz., resection of the hip-joint.

Upon the recognition of a case of hip disease, no matter what the age of the patient, the tripod of success is: 1, perfect immobilization with the Thomas splint; 2, the prone position; 3, extension. Without any other means whatever, I feel confident, in at least 90 per cent. of all cases, of securing the best results, when the above rules are strictly adhered to, and intelligently carried out. With the intra-articular and parenchymatous injection of a 10 per cent. emulsion of iodoform in glycerin, properly sterilized, we get better results than with a similar use of any other of the numerous solutions that have come before the profession. This treatment has been followed some years, but is, properly speaking, one of the weapons of modern surgery. Since the discovery that the tubercle bacilli existed in the so-called cold abscesses and joint affections, its employment has been more a matter of scientific application, with results directly proportionate to the thoroughness with which it is carried out.

Sometimes iodoform intoxication occurs among those who are particularly susceptible, but it is infrequent and rarely of much violence. Nevertheless, in its administration one should give but from twenty to thirty grains, according to the age of the patient, at the first treatment, and watch the effect. If the patient bears it well, it may be increased to a much larger dosage. After we are satisfied of the existence of disintegrating material, boldly plunge a small, perfectly sterilized canula into the capsule, or the body of the abscess, and draw off all the contents. Leave the canula in position, and with an aseptic rubber tube attached to it, thoroughly irrigate the interior with a warm Thiersch solution, or a 2 to 4 per cent. solution of boric acid. Continue irrigating until the returning solution is perfectly clear, then fill the cavity moderately full of the iodoform emulsion, remove the canula, and place over the opening a close aseptic dressing. The parenchymatous injection is about as effective as the intra-articular, and the same technic is employed.

In the hands of many surgeons, balsam Peru, corrosive sublimate, iodin, carbolic acid, and arsenious acid have proved of more or less value in their antibacterial action. The violent inflammation set up by the most of these agents is a hindrance to their more general adoption, so that iodoform in glycerin is much more popular. Different operators publish a variety of statistics on the employment of iodoform in this manner, some going so far as to absolutely deny any antibacterial action whatever, while others consider it the best and most curative agent in our hands. As far as I am able to judge of its value in the few cases in which I have used it, I believe it has a definite, germicidal power, depending largely, as a cure, on the stage of the diseased process wherein it is used. True, I have not always found the tubercle bacillus in the gross discharges from such a condition—it is sometimes quite difficult — neither can we always attest the infallibility of the Widal test in typhoid fever; yet, to him who has come in contact with very many representatives of these diseases, the phases are so pertinent, that a mistake in diagnosis is improbable. And we are certain, absolutely so, in spite of all the tests, that the above diseases exist, even when their bacilli can not be demonstrated. So much for the first method of treatment alone, which may be combined with the second, that of extension, and often to great advantage.

As I have previously declared, the success of treat-

ment by extension depends on perfect immobilization of the affected part, and rest in the prone position, during the acute stages at least. I am unwilling to admit that a patient can do as well with the joint immobilized and be allowed to go on crutches. The great requisite is rest for the joint and also for the tissues enveloping it. No one can be sure of the entire absence of muscular, and even of joint motion, when a patient is in the upright position. And it is this perfect rest, with separation of the diseased synovial membranes, upon which we base our assumptions for relief and cure. We know full well how little motion or disturbance can be borne by the sufferer, when we attempt to make an examination of the hip-joint without anesthesia. It does not appear that age makes much difference; from extreme childhood to old age the excruciating agony they endure upon the slightest motion goes to show why perfect rest is best.

One of the best means for securing immobility is the Thomas splint, perfectly fitted, applied and maintained. I do not deem it always requisite to use this splint. In adult cases it is not needed as much as among children. Where immobilization can not be secured by ordinary bandaging for extension, then the Thomas splint is the best appliance known. Its use should be maintained after the acute stage has passed, and the patient is allowed to go about on crutches, with a patten under the foot of the well leg.

Another most beneficial agent incorporated in the armamentarium of the surgeon for the treatment of this condition, is Vaughn's nuclein solution as produced by Parke, Davis & Co. I have used it in conjunction with extension in a number of cases. In one case, that of a man aged 44 years, it was not administered hypodermatically. I gave him the 5 per cent. solution by the mouth in rapidly increasing doses, until he was taking 60 minims four times daily. From the very beginning an attempt was made to thoroughly saturate him with the nuclein, and the happy results more than repaid us. A rapid decrease in the swelling about the hip-joint took place, the tenderness wholly disappeared, his appetite improved, and there was a complete subsidence of the usual train of annoying symptoms, that rarely, in previous cases, had been accomplished by extension alone. During the incarceration of this patient's hip-joint, he gained over twenty pounds in weight. He had previously undergone amputation of the foot, on the same leg that now suffered from hip disease, for tuberculosis of the ankle. At the time the extension apparatus was adjusted there were several small tubercular ulcers on the tibia above the stump; hence it was not without misgivings that radical treatment was instituted. And I feel compelled to admit that without such a powerful agent as Vaughn's nuclein solution, producing a vigorous leucocytosis, the result in this case could not have been good. The great increase in the disease-resisting power afforded the human body by such an element, its germicidal influence and antiseptic properties, recommend it very strongly to our consideration in these cases. Experimenters speak of it very highly also, in cases of mixed infection. Its use, either by the mouth or hypodermatically, is attended by no evil results. I presume I have given nearly 1000 injections of it, and have had as yet no needle abscess—something one can not say of all the various antitoxins we use nowadays.

The third and most extreme measure adopted for the treatment of this disease, resection of the hip-joint, I have found it necessary to employ three times. It is so radical, and the deformity is so marked, that one hesitates to resort to it, often putting off the evil day until he feels he is not doing the patient or himself justice. Some writers may deem it the only treatment employed that might be termed radical. To be sure, it is the extreme of radicalism, but is demanded in a certain class of cases. There are degrees of severity of the invasion of the hip-joint by the tubercle bacillus, just as there are of any other disease with which we come in contact. One type we can treat by a measure as radical as any other, because it singles out the cause and eradicates it; another by means just as effective and as far-reaching, but perhaps not so brilliant; and a third by the last-resort method, the sacrifice of more or less tissues, but the permanent removal of all growth interfering with local and general recovery.

Surgical good sense, for which conservatism is so often and improperly used as a synonym, should be the bulwark of every well and properly-equipped operator. With a case in hand, one can not go over the ground and make an operation of selection, for you have something to do other than a mere removal of the head of the femur. The anatomic relations are so changed that one would scarcely recognize the vicinity, and the attack on the great bulging, sloughing mass can not be made upon any hard and fast lines. The idea is to get to the seat of the trouble as rapidly as possible, and with the loss of as little tissue as is practicable, and at the same time be thorough. The simple resection of a practically normal case is nothing compared with what confronts one in a last stage case. The amount of pus that can burrow around the hip and pelvis, and the amount of disintegrated tissue that comes away through a free incision is astonishing. The removal of all adjacent diseased tissue and the scraping of the foci are secondary to the rapid and careful resection of the head of the bone. Remove all signs of disease, but leave all the bone that it is possible to leave. In doing the section, leave the great trochanter, if possible; if it must be sacrificed, saw through it just above the lesser trochanter at an angle, thus maintaining the integrity of the muscular attachment for the great muscles of the thigh.

Notwithstanding the deformity which must result from the removal of such an important factor, it is neither as great nor as maiming as that which follows the usual suppurative processes involving the hip-joint, when allowed to heal by natural resolution. Resection presents the horrors of an operation to patient and relatives. It also guarantees speedy and permanent relief from pain, but a permanent shortening. This shortening may be much or little, many times depending on the attending surgeon in his removal of tissue, and also on his after-treatment and care of the case. If the case be young, we have every reason to believe that there will be a continuation of the growth of the femur, thus modifying more or less the permanent shortening. In my experience, those who have endured this operation are lame only from the shortening, while, in the result of a spontaneous cure, a very aggravating ankylosis and tilting of the pelvis accompanies it, with even a greater amount of shortening.

Much more might be said on this subject; cases could be cited of the various methods of treatment, and details pursued, but it is not pertinent at this

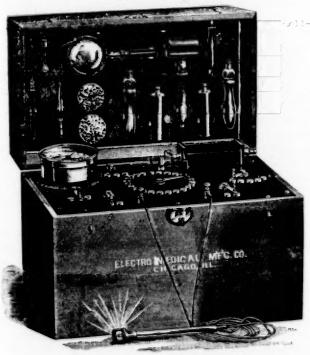
time. I am satisfied that not all is accomplished by radical measures that should be expected. Still, with the improved methods at our hands, the greater knowledge of cause and effect, we may hope to accomplish much more than has ever before rewarded our efforts.

A NEW PORTABLE ELECTRIC OUTFIT.

BY GUSTAVUS M. BLECH, A.B., M.D.

CHICAGO.

Electricity as a therapeutic agent, while quite popular with a few specialists and wealthy practitioners, is employed by the majority of general practitioners with no scientific precision, because of lack of suitable apparatus. The results are poor, for to obtain good results good apparatus is necessary. It is therefore for this reason that electricity is decried by many as a valueless agent, while in reality it is a very valuable means of curing a large number of nervous and muscular affections. The idea prevails among many practitioners that electricty can be administered scientifically only by means of large, stationary and expen-



sive "machines." The price and impossibility of moving the batteries from the office to the bedside of the patient have proven objectionable features, preventing the general introduction and practice of electrotherapeutics. It is perhaps of interest to know that the most renowned specialists in Europe, for example Dr. Erb, who has become famous through his lectures and writings on electrotherapy, use, in their private practice, small portable batteries. Of course, the term "small, portable" is not to be confounded with the so-called family batteries, for self-treatment, which, as a rule, are not worth the material used on them. The erroneous idea that large liquid cells yield more electro-motive force and ampèrage than small dry cells has prejudiced the profession against anything but stationary cells. We know today that the size of the cell has nothing to do with its electro-motive force and that a small dry cell about as large as a vaginal speculum will do more for a longer period of time than, for example, a Laclede sal ammoniac cell. The cost of renewing a dry cell is not larger than the refilling and keeping in good order of large liquid cells.

Knowing these facts, and to overcome the objections mentioned, with the co-operation of the manager of the Electro-Medical Mfg. Co., I have devised a combination battery which, while cheap, admits of the scientific administration of galvanism, faradism, the practice of electrolysis, and the illumination of small lamps for diagnostic purpose. The following illustration gives a fair idea of its construction.

The battery has twenty-four cells, connected to the galvanic circle, yielding 33 volts. The faradic current produced in the coil is even and smooth, but can also be regulated with Lindstrom's rheotome to from 100 to 4000 interruptions per minute. There is a selecting switch for primary and secondary currents. By means of a switch, connection is made with a strongly built milliampèremeter for the measuring of the galvanic current. Four extra large cells are connected to a German silver wire rheostat for the purpose of running a small incandescent lamp (25 hours) for the illumination of cavities—throat, vagina, rectum, etc.

The battery can be used for electrolytic work, such as the removal of superflous hair, warts, moles, etc., and has for that purpose an electric needle and holder, epilation forceps and magnifying glass. To the battery are added several sponge and metal electrodes, one roller electrode, one metallic brush and one interrupting handle, all which are fastened between strong clamps to the inner side of the cover.

SOCIETY PROCEEDINGS.

Cincinnati Academy of Medicine.

Regular Meeting Feb. 13, 1899.

Dr. J. W. MURPHY read the paper of the evening entitled

TREATMENT OF DISEASES OF THE MIDDLE EAR, WITH REPORTS OF CASES.

About one sixth of all ear cases come under the heading of chronic otorrhea. It has been proven that suppuration in the mucous membrane of the middle ear leads to hardness of hearing and deafness, through the impairment or destruction of the delicate structures contained therein. Incased in the deep bony cavity, freely communicating with the pneumatic cells of the mastoid, with important structures adjacent to or passing through it, we can see how any suppurative process of the ear is a standing menace to the life of the patient. He had seen in Professor Schwartze's clinic the skull of a boy 13 years old, where the suppuration had continued through the bony wall of the lateral sinus, and sudden death followed. There had been no symptoms beyond a purulent discharge from the middle ear.

In children in whom this disease is especially frequent, the various parts of the temporal bone are not united, but only held together by a fibrous matrix, and consequently secretions from the diseased mucous membrane may find an easy entrance to the meninges and brain itself. The bony covering of the Fallopian canal may be eroded and the horizontal semicircular canal opened through this suppuration. When the facial nerve is injured the paralysis is permanent. Pathogenic organisms may pass along the nerve sheaths, either toward the cerebellum, or upward and forward through the foramen enclosing the great petrosal nerve. According to Macewen, when the inflammation extends along the nerve sheaths it is more apt to give rise to leptomeningitis than brain abscess. Quoting the same authority, the essayist said: "When the tympanic cavity has become the seat of chronic suppuration with ulceration of the mucous membrane, extending into the antrum and mastoid cells, it becomes a standing menace to the safety of the patient. A person might as well have a charge of dynamite in the mastoid antrum or cells, as one can not know the moment when accidental circumstances may arise which may cause the infected matter to become widely disseminated all over the cerebrospinal system. Chronic otorrhea is much too lightly regarded, and is frequently considered as a mere inconvenience instead of a menace to life. It is a disease which advances insidiously, often without pain, until very extensive destruction of the middle ear and the mastoid antrum and cells, with thinning of their osseous walls and serious inflammation of the blood-vessels and the brain itself, occurs. One who has a chronic purulent otitis media is liable to have, with

very little warning, a most serious or even fatal illness. The records of most aural hospitals show that their patients are all confined to the earlier decades of life. It is probable that many people die from such causes before they reach 40 years of age. All persistent purulent discharges from the middle ear ought to be regarded seriously, and the medical attendant ought not to rest satisfied until the discharge is cured."

Till within recent years we did not meet with the measure of success desired in these cases. We were too intent on treating the ear itself and failed to see that the primary seat of the disease was not in the ear, but in the nose or nasopharynx. The bacilli found in the nasopharynx may readily pass up the inflamed Eustachian tube, producing an inflammation of the middle ear. On the other hand, the secretions of the middle ear may pass down the Eustachian tube into the nasopharynx, producing inflammation there, or possibly an infective pneumonia if inspired, or an infective diarrhea if swallowed. If all source of fresh infection can be removed, the germs are gradually weakened until they are no longer capable of reproduction and the discharge ceases. Most of these cases give the history of both ears having formerly discharged, but that in one the discharge had ceased without treatment, and an examination shows a large perforation or perhaps that the entire drum membrane has been destroyed, the other ear still continuing to discharge. The pharyngeal opening of the Eustachian tube on the one side is able to prevent the passage of the micro-organisms, while the other is not, and the discharge continues. In nearly every case we find the least nasal obstruction on the side that has ceased to discharge.

Adenoids in children are the primary cause of more otorrheas than all other causes. Their complete removal is the only treatment, and often all the treatment that is necessary. The German clinics teach that these chronic otorrheas are best treated by the mastoid operation. The experience of the essayist has been that if more attention is given to the removal of the obstruction about the pharyngeal end of the Eustachian tube, the discharge will soon disappear without such radical treatment. The troubles of neither the patient nor the physician end with the mastoid operation. When indicated, it should be done, but if these cases are treated before dangerous symptoms appear, the vast majority may be cured. Give these chronic cases careful treatment beforehand and they will frequently get well without opening the mastoid cells. True, not all cases will recover under this line of treatment, but all patients should be subjected to this plan of treatment before resorting to operative procedures.

The essayist then reported a few cases of chronic otorrhea which had remained cured for from three to five years; also a case of facial paralysis with opening of the Fallopian canal and horizontal semicircular canal from a chronic otorrhea.

Case 1.—Louis R., aged 21 years, was first seen in October, 1894; had had purulent otorrhea for fifteen years. The removal of a large post nasal hypertrophy of the inferior turbinate had caused the discharge to cease in a week. The ear had remained well with considerable improvement of hearing on the same side.

Case 2.—John B., aged 17 years, had had discharge from both ears for ten years. Removal of hypertrophy from both nares had caused the discharge to cease in four weeks.

Case 3.—Emma B., aged 8 years, was first seen in January, 1895; had had discharge from the right ear for four years; had difficulty with her lessons at school and was gradually growing deaf. The removal of the large tonsils and adenoids caused the discharge to cease in two weeks. By means of Politzer's method of opening the Eustachian tube, in six weeks the hearing was almost normal.

Case 4.—Robert H., aged 12 years; facial paralysis and dizziness following injury to the Fallopian canal and the horizontal semicircular canal from middle ear diseases; had had a discharge from the right ear for the past ten years; there were no symptoms of pain until in October last, when he applied to the Miami Medical College Clinic for relief from pain; the right ear was full of foul-smelling pus, through which granulations could be seen in the middle ear; watch was heard only on contact. The left ear was dry, the drum membrane absent and the watch heard at but six inches. He was ordered a solution of boracic acid, to be warmed and dropped in the ear three times a day; this gave relief and was continued for three days. Facial paralysis then came on suddenly, with staggering when he attempted to walk, staggering always toward the side of the affected ear. These symptoms might have been caused by pressure from the granulation tissue in the middle ear and mastoid antrum; the dizziness and staggering by pressure on the horizontal semicircular canal. Opening of the mastoid and removal of the granulation tissue was advised, and the mother was warned that it was not likely that the facial paralysis would disappear. The patient was sent to Christ's Hospital and, assisted by Dr. S. E. Allen, the radical mastoid operation was performed. The middle ear was found filled with granulation tissue and the surrounding bone soft and necrotic; but fragments of the hammer and anvil were present. When the granulation had been removed, it was seen that the Fallopian canal and the horizontal semicircular canal had both been eroded by the disease. Probing of the facial nerve failed to elicit twitching of the muscles about the corner of the mouth. The probe could be passed into the opening of the horizontal semicircular canal, plainly showing its direction. After thoroughly curetting out all the diseased bone, the membranous auditory canal was split so as to cover as much of the denuded bone as possible, and the wound entirely closed with silk sutures. The middle ear was packed with iodoform gauze through the external canal, and a bandage applied. The dressings were not removed for seven days, when the external wound had closed by first intention. The patient made an uninterrupted recovery. When he attempted to walk, for the first few days there was considerable staggering, always to the side of the affected ear. The facial paralysis still remains, and will likely be permanent. He is outgrowing the staggering, and now runs and plays the same as any other boys of his age. Dr. F. W. Langdon kindly saw the case in consultation and gave an unfavorable prognosis as to the disappearance of the facial paralysis. He considered it fortunate that no attempt was made to remove the granulation tissue at the first visit; had the attempt been made and paralysis followed, it would have been thought that the operation had caused it. The child had enlarged tonsils and adenoids, which were no doubt the primary cause of the otorrhea. The child was presented, as were many specimens of ear pathology and anatomy, and several plates on the same subjects.

Dr. S. E. ALLEN said that he had been present at the operation and was confident that the Fallopian canal had been eroded and the horizontal semicircular canal opened by disease, and that the facial nerve had been irreparably damaged from the same cause. He took the same stand as the essayist concerning the prevalence of diseases of the nose and throat with those afflicted with running ears. He had not yet made up his mind which was the more dangerous, a chronic insidious disease with gradual involvement of the mastoid or an acute fulminating one, whose first warning might be so quickly followed by meningeal involvement as to make the prognosis extremely grave.

Dr. D. T. VAIL wished to corroborate many of the statements of the essayist. He himself was a living witness of the efficacy of thorough and intelligent treatment of chronic otorrhea, from which he had suffered for many years and from which he had been rescued not by operation, but by a vigorous use of two simple remedies—the peroxid of hydrogen and the spirits of boracic acid. While he still had a large perforation in one ear and the drum had entirely disappeared from the other, yet he had no particular difficulty in hearing even in the back part of a theater or church. As regards the pneumonia that sometimes occurs as a result of involvement of the mastoid, he was inclined to think that it was due, not so much to the discharge passing down the Eustachian tube and then into the lung, but that the lymph-stream was involved, and finally the blood and the lung by systemic infection.

Dr. J. A. THOMPSON was inclined to think that while both were dangerous, he was more in fear of the acute disease, in view of a fatal case of pyemia, the result of acute mastoiditis, which he had reported to the Academy last fall.

Denver and Arapahoe Medical Society.

Regular Meeting, Feb. 14, 1899.

Dr. WM. P. MUNN, health commissioner, gave an extemporaneous talk on the

PREVALENCE OF SMALLPOX IN DENVER AT THIS TIME.

He recited the history of all the epidemics of smallpox in Denver prior to 1890: One in 1886, which originated in Leadville, and which was suppressed in 1887 by Dr. McLaughlin; another epidemic in 1888-89, which was suppressed by Dr. Clark, health officers respectively. Denver has been free from smallpox since 1890, with the exception of imported cases: in 1891, one case from Trinidad; 1892, one case from New Mexico; 1893, four cases from Seattle; 1895, one case en route from Mexico. The city was free from smallpox until Nov. 15, 1898, when a sheepherder from New Mexico, suffering from the disease passed through the city, going to Fort Collins, where it is reported he died. Ten days after he passed through Denver, two railway employes with whom he had come in contact developed smallpox; a week later the child of one of these men and

a sister of the other were taken down. All were removed to the hospital; all recovered and were discharged by Jan. 15, 1899.

A negro from Pueblo, of whom the health officers had a description, but whom they were unable to discover, came to Denver about Christmas time. One of the persons who had come in contact with him came to Dr. Kleiner for treatment, and he at once recognized the trouble as smallpox. The Doctor did not allow him to leave his house, and at once notified the health officers. Within an hour and a half the patient was in the hospital. The next day another case was discovered by a health officer.

On November 27 Drs. Blair and Parkhill reported another case; that of a merchant of the city who returned from a trip through Southern Texas, where he had been exposed to smallpox. From this case two cases arose, one being the child and the other the partner of the gentleman originally affected. By this time a succession of twelve cases among negroes have occurred as a result of the first importation, all having been removed to the hospital, and all are out there under treatment at this date. About January 18 a prisoner in the county jail complained of illness; he had been an inmate of the jail for two months, and was not known to have been in any way exposed to smallpox. After several days, however, typic eruption developed, and he was removed to the hospital. On Jan. 27, a man just discharged from jail was found to have the disease; he had been a prisoner for three months and in the same corridor with the preceding case. Dr. McLauthlin has discovered another case, that of a white girl. The origin of infection seems to be traced to contact with a soldier from Manila. The total number of cases occurring from the above sources of infection has been twenty-three. There are two other cases in which diagnosis is not yet positive. They would have been discharged, but their history of exposure is certain, and therefore they are kept under surveillance. At this time all known cases of the disease are isolated at the Sand Creek Quarantine Hospital. Two deaths have so far occurred, and it is probable that several of the colored persons affected will die, as the disease is confluent with some of them. Of all cases, only one refused to be removed to the hospital. After three weeks he begged to be removed, and complained bitterly that they had not removed him at once by *force*. Indeed, the Commissioner remarked, aside from the moral point of view—that of lessening the danger of infection in the community—it is impossible for any but the very rich to stand the expenses of home treatment. They have to pay for the quarantine guard, double price to nurses and physicians. The danger to the community is always minimized when the patient is at once removed to the hospital. The quarantine hospital is situated seven miles from the city. It is well kept and in good repair. Its capacity is fifty beds.

In each instance of infection all persons whose exposure has been great have been removed to the hospital for supervision or observation, or else the occupants of the infected premises have been kept under surveillance for two full weeks. Vaccination has been done for all persons in infected districts. General vaccination has been urged through the daily papers. In the health office alone 8000 vaccinations have been done. The wholesale drug firms report the sale of 15,000 tubes of lymph to physicians. It is assumed that nearly 24,000 persons have been vaccinated since January 1.

Infected goods in the houses where the cases occurred have been burned in every instance. The houses have been disinfected twice, and in some instances three times, using either sulphur or formaldehyde, as the circumstances seemed to justify.

Notwithstanding the fact that a city has a right to destroy infected goods, but since it is almost always the poor that suffer most from infection, and the destruction of their property would entail great hardship upon them, he has taken the liberty of reimbursing those who presented a reasonable bill for goods destroyed. The health offices used glycerinated lymph, and 99 per cent. were successful. This proves that vaccination should be done oftener. Many who showed successful vaccination scars took readily, and a Chinaman who bore the marks of smallpox took the vaccination well.

The diagnosis of smallpox is at times a difficult matter. The first two cases were diagnosed at sight. The third was treated for syphilis. A policeman diagnosed the case, and the doctor agreed with him. Another case was treated for two weeks as chickenpox, and another was kept under observation by several prominent physicians, and thought to be chickenpox.

The first source of infection has distributed smallpox all over the State. There were cases in Florence, Boulder, Trinidad, Pueblo, and in a few smaller cities. It is due to the vigilance of Dr. Henry Sewall, the secretary of the State Board of Health, that the spread was checked. He was untiring. He went to every infected city and personally investigated every case. He delivered public lectures, and encouraged all the local health authorities by his presence.

Dr. McLauthlin said that the city of Denver is under great obligation to its health officer. It is certainly due to his untiring energy that a city like Denver, surrounded by so many smaller cities where smallpox raged, should show only twenty-three cases. He advocated the early reports of all suspected cases. From his experience he concludes that the most pathognomonic symptoms before the eruption appears are the intense headache and backache. Chicken-pox is very uncommon in adults, and therefore should be looked upon as suspicious.

Dr. Miel gave a detailed description of the first case of infection. He traced the sheep-driver's movements from point to point. The man of whom he bought tobacco in Pueblo was taken with smallpox. He ascribes the source of infection to the paper money.

Dr. Whitney said that Kaposi used to base the diagnosis of smallpox from the halo surrounding the papule, which is very characteristic. It does not fade into the surrounding skin, but is sharply defined in its whole circumference.

Dr. Munn has noticed the halo in some cases, but was sure it was absent in the case found in the county jail.

Dr. Rogers reported an interesting case which he saw some twelve years ago. This man was in Denver only a few days; came here for pulmonary trouble; was taken with severe headache and backache. On the third day he commenced to spit blood, which was thought at first to be of pulmonary origin. Then he had nose bleeding, and a day later, blood in the urine. There was a universal hemorrhage and the patient died. The diagnosis of hemorrhagic smallpox was based upon the intense headache and backache.

Dr. Levy urged the importance of examining the mouth and throat in all cases, especially in colored people.

Dr. Shallenberger recited the history of a case which commenced with slight symptoms in which headache and backache were absent, and no eruption appeared until the ninth day.

Dr. Munn, in closing the discussion, expressed his thanks to Drs. McLauthlin and Sewall for their active co-operation, and to Drs. Worthington and Stratton, his associates, for their aid.

Dr. H. B. Whitney reported the following rather remarkable case of vaccinia:

A boy, aged 8 years, was vaccinated with glycerinated lymph on January 15, together with five other children in the same family; all successful. He was called January 25 and found the following condition: Child in bed, dull, apathetic; rectal temperature 105.51 degrees, pulse regular, respiration not accelerated. The arm presented a small superficial ulceration at the site of the inoculation. Around it the skin was much redder from elbow to shoulder; moderate infiltration. In the immediate neighborhood of the place were four large blisters. An attempt to empty one of them by puncture was unsuccessful. Upon the face and back were found numerous macules; a few already showed small vesicles in the center. The mucous membranes of cheeks, soft palate and lips were the seat of an efflorescence. The whole interior of the mouth looked grayish-white, as if the patient had swallowed a strong caustic. It was somewhat painful and swallowing was difficult. The same state was found in and around the rectum. There was marked photophobia. On the following day the temperature was found the same, the eruption more advanced. He had called Dr. Zederbaun in consultation. The boy was stupid and drowsy, pulse good, tongue moist. The arm presented a curious condition. New vesicles had formed of the same enormous size as the first, so that from elbow to shoulder over nearly its whole circumference, the arm was a confused mass of bright red raw surfaces of various stages of vesiculation and adherent sheets of epidermis. Eventually there was complete exfoliation of the whole arm. The central part remained as a superficial ulcer throughout, and eventually healed by granulation.

The most extraordinary feature, however, was the general eruption. The muscles on the face and ears remained small and vesiculation was slight, but those on the trunk reached an enormous development. Imagine a large, irregular macula, perhaps two inches in diameter, rather light red toward the center, but surrounded by a red halo, the margin of which is as sharply defined as if made with a brush. In the center is a flabby and shallow vesicle about the size of a two cent piece and containing pure serum. Imagine these immense maculæ scattered irregularly over chest and back, especially thick and confluent toward the median line, and you may conceive the curious picture presented. There was no rash on the extremities.

The condition of the mouth was simply horrible. The odor was extremely foul. The general condition slowly improved although the temperature kept up at 104 for several days. The

macules continued to appear, and presented in a few hours a beginning central vesiculation. The subsequent course of most of these vesicles was rupture and the formation of large, yellow crusts. The mouth has cleared up, and the arm too, under zinc oxid ointment. The chest and back are thickly strewn with large and small, irregularly shaped, yellowish crusts. It seems quite probable that some, at least, will leave cicatrices.

Dr. EDSON, in discussing the above case, advocated a State farm for the manufacture of vaccin lymph. He said that no matter what precautions the physician may take, he is at the mercy of the lymph manufacturers. If manufacturers can produce lymph and make profit, why can not the State produce it at cost and control its purity? He recited the history of an epidemic of infected arms following vaccination in an Eastern city, traced to the uncleanliness of the cows in a lymph farm.

Dr. AXTELL thinks that glycerinated lymph has no advantage over the vaccin points. There are as many successful vaccinations with the one as with the other. He cited eminent bacteriologists who claim that dry vaccin is the better article. Glycerin is but a feeble antiseptic.

Dr. SCHALLENBERGER reported a case of a child that revaccinated itself at seven different places. The cause was pruritis.

Dr. LOVE asked whether a woman at term should be vaccinated.

Dr. MUNN said if she was not directly exposed to infection, he would not vaccinate. He finds that when one has wounds and is vaccinated the wounds become infected. A pregnant woman may abort, or have a lacerated perineum, and therefore become infected.

Dr. WARREN wanted to know whether one suffering from acute tuberculosis should be vaccinated.

Dr. MUNN said that he has never noticed any deleterious effects from vaccination in tuberculous patients.

Drs. SPIVAK, Tyler and Whitney each reported cases in which the vaccination took on the fourteenth, fifteenth and twenty-first days respectively.

San Francisco County Medical Society.

February Meeting.

Dr. S. J. HUNKIN presented a report to the Society embracing

FORTY-SIX CASES OF ANESTHESIA WITH THE SCHLEICH MIXTURES.

He called attention to the advances of surgery since the surgeon had acquired anesthetics, and to the objections to both ether and chloroform as anesthetics; in his opinion there were more objections to be raised against any of the recently suggested anesthetics. He then reviewed the position and statements of Schleich. The theory of the Schleich mixtures was founded on the belief that if the anesthetic possessed a boiling point at or near the body temperature, it would not be retained in the blood, would be rapidly eliminated and hence produce few, if any, dangerous complications. This being the aim of the suggester of these mixtures, the objective solutions were obtained by mixing together varying proportions of ether, chloroform and petroleum ether, or benzine. Three mixtures have been advocated by Schleich, and all three were systematically tried at the Children's Hospital, San Francisco, most of the administrations having been made by Dr. Phelan, at present in Manila. The three formulas were about evenly distributed among the forty-six cases, and the observations and recorded data were most complete. It was found that very little difference could be noted as to the ease of administration, time required, etc., between the three mixtures. With mixture No. 1, which has a boiling point at 38 degrees C., the average time for going under the anesthetic was ten minutes; for coming out, fourteen minutes; the average amount used was about 50 c.c., ranging from 47 c.c. to 100 c.c. Some symptoms of excitement were noted, but there was little or no vomiting. With mixture No. 2 the results were about the same, save that administration was perhaps easier and there was a little less nervousness noticed. Mixture No. 3 exhibited but little variation from the other two. The patients ranged from 22 months to 24 years; the average pulse-rate going under was 105, and coming out 111; the operations lasted seventeen to ninety minutes. Two cases died some little time after operation, and in three there were grave symptoms of nervous excitement with collapse. One patient exhibited some nervous stimulation for three days after the operation. In one case the nervousness at the time of administration necessitated the substitution of chloroform for the Schleich mixture, and with chloroform no further trouble was noted. None of the nervous complications were noticed when the mixture No. 3 was used. The Doctor concluded that as the relative amount of chloroform increased in the three mixtures from No. 1 to No. 3, the lessened amount of nerve complication was in direct proportion to the increased amount of chloroform. In his estimation the Schleich mixtures represented the cardiac depressant action of chloroform, together with the objectionable action of ether on the kidneys, and consequently were much worse than either chloroform or ether alone. He referred to the work and the statistics of Meyer and others, and concluded by saying that chloroform seemed to be the best anesthetic, ether the next best, and that all mixtures, like all mixed drinks, were harmful.

Dr. SHERMAN said that as he had operated in most of the cases cited, he felt implicated to a large degree. From the point of the operator the mixtures were all right; the patients were sufficiently and properly anesthetized and so remained during the operations. The deaths noted in the report were undoubtedly due to the nature of the disease and the required operation, and the anesthetic could not be responsible. In the Children's Hospital the giving of an anesthetic is a very formal matter. One of the internes is deputed to that task, and serves for three months at a time. She is first carefully instructed in the method of administration, and the proper course to pursue in case of any and all complications, and is not allowed to give an anesthetic alone, nor till it is evident that she is quite able to handle any situation liable to arise. She is provided with blanks which she is required to fill in with the necessary data: the pulse-rate at commencement and during the operation, respiration, time of going under, time consumed by the operation, time of coming out, amount of anesthetic used, etc. Dr. Sherman said that it was difficult for him to see how the mixture of benzin or lucin, which petroleum ether really was, with chloroform and ether, could be an actual solution and not a mechanic mixture. He thought that they would separate, or at least have different distillation points, and hence they would be absorbed not as a unit, but consecutively, and that the action would therefore be unequal. In his estimation any of the simples was much to be preferred to any mixture of them with or without other material. In this he agreed with the clinical experience of Dr. Hunkin. He suggested that, as in Ireland the habit of drinking kerosene, and in Paris the habit of drinking benzine, were now well known methods of becoming intoxicated, perhaps the nervous action of the Schleich mixtures might be due to the contained petroleum ether or lucin.

Dr. ROBERTSON said that each man used that anesthetic which he individually thinks the best, and all men who use any other anesthetic, save in special cases, are guilty of gross carelessness. The choice of anesthetic is largely a matter of personal experience and opinion founded thereon. Some years ago every one was using and recommending the "A C E" mixture of alcohol, chloroform and ether; now it is seldom used and almost never heard of. Other mixtures had been suggested and used, but they seemed to meet with the same fate as the "A C E." He could not but be impressed with the astounding length of time which a person could be kept under a properly administered anesthetic. The proper administration was the problem of anesthesia, and on that largely depended the good or bad results.

Dr. HUNTINGTON said that he could not pass unchallenged the statement of the writer of the paper, to the effect that ether was the much more dangerous anesthetic, when chloroform and ether were considered alone. It was quite the reverse of his teaching and his experience for the past twenty-five years. When ether was properly administered it could be taken with as much ease and in as short a time as was the case with chloroform. Furthermore, he had never heard of a case of ether anesthesia in which death had resulted suddenly from cessation of the heart's action, during the administration of the anesthetic. These cases were not uncommon when chloroform was used, and he had personally heard of many in various parts of the State. There were three points which he wished to emphasize in regard to the advantages of ether: 1. Rapidity of anesthesia. He had found it no infrequent occurrence to have an average patient fully under the anesthetic in from three to five minutes, which was certainly as little time as would be required by chloroform. He used the modified Parkinson inhaler. 2. Safety. All authorities were, he thought, agreed in the one fact that chloroform did have a depressant action on the heart, and that there were occasional deaths due to this action directly, the patient dying while going under the anesthetic. And when the patient's heart once stops from chloroform poisoning, it has stopped for always. When ether is the anesthetic, the respirations may stop for a moment or two, but they are again resumed and all goes well. In twenty-five years, mostly confined to operative work, he had seen but two cases in which the cessation of respiration became alarming and in which strenuous efforts had to be made to restore the patient. 3. The duty of the operator to

use that anesthetic which would be the best for the patient, not that which would be least disagreeable. Death from the administration of chloroform smacked more strongly of manslaughter than did death from the use of ether.

Dr. SOUTHARD said that he had been anesthetist for one of the large Boston hospitals for many years and had there given many anesthetics, but until he came to San Francisco, he had never made use of chloroform. He raised the question as to the need of any new anesthetic. Was not the death rate from ether as small as could be expected from any agent as powerful as a general anesthetic? In regard to the Schleich mixtures, there were far too few cases yet reported to draw any conclusions that would be of value. Valuable conclusions must be drawn from thousands and not from a few hundred cases. One who looks through the foreign journals must be impressed with the fact that they so often record the death from administration of chloroform, but have never mentioned a death from ether, or almost never mention such an occurrence. The examination of the urine should be a routine measure before an anesthetic was given, and the result of the examination would disclose the only objection to the use of ether, if it were present. Cyanosis, when it occurred, was due, in his opinion, to the faulty administration of the anesthetic and not to the ether itself. If the cone be pressed too tightly to the patient's face, he can not get enough air to breathe, and consequently suffocates from rebreathing his expired air. Twenty-five years ago, when in London, he observed that no ether was used. Two years ago he noticed that chloroform was never used in at least two of the large London hospitals.

Dr. SHERMAN said that the Schleich mixtures were worse than either ether or chloroform, but he did not agree that chloroform was to be preferred to ether. He was firmly of the opinion that ether was much the safer anesthetic.

Dr. HUNKIN said that there could be no question that the statistics all showed many more deaths from chloroform direct than from the use of ether direct; but that alone is not the question. The secondary actions of ether were much more far-reaching than generally supposed. Ether was safer, in the same way that the layman considers cholera a more dangerous disease than tuberculosis, for the reason that it kills a few people very quickly, whereas tuberculosis kills hundreds of times as many people, but it does it in a more quiet and unostentatious way, taking months or years to produce death where cholera proves fatal in a few hours or days. He had seen many cases of pneumonia and uremia which were undoubtedly caused by the ether administered for anesthesia. If these cases were included in the tables of deaths from anesthetics, they would very materially change the aspect of the case. But they are not, and so we are accustomed to think only of the immediate actions and effects of the anesthetics, and not of the remote consequences which may be fatal, and are, in many more cases than is generally believed.

Dr. H. D. ROBERTSON read a paper entitled

THE HANDLING OF SYPHILIS.

He first cited five cases which represented a few of the typic conditions which he wished to call attention to. In some of the cases the treatment had not been commenced until the secondary or tertiary symptoms had disappeared; in others, the treatment had been undertaken before the secondaries had made their appearance. He had found that if the treatment was undertaken before the secondaries developed, they were sure to appear and to be much more unyielding than if no treatment had been given until they were noted. He urged a concerted action on the part of physicians toward impressing upon patients the necessity of awaiting the development of the secondaries before undertaking treatment. This he stated was in many cases difficult, for patients could not, very often, see the reason for waiting when they might be running chances of which they knew nothing. He urged the legislative control of syphilis, as of any other dangerous and contagious disease, and particularly of this disease, because the innocent were so liable to become infected and to draw upon themselves suspicion. It would be a difficult problem, but it could be done, and it was certainly better to let one person suffer mortification and reproach for an offense, than to have many innocent suffer for the sin of another.

Dr. KROTOSZYNER said that there was sometimes a certain difficulty in holding a patient until the secondaries had appeared, but that it should always be done; and that general treatment should not be undertaken until secondary symptoms had manifested themselves. He thought there was but one specific for syphilis, e.g., mercury, and that there should be much judgment displayed in the proper method of administering it.

Dr. D. W. MONTGOMERY said the diagnosis of syphilis could not be made with absolute certainty until the secondary symptoms had appeared; consequently it was not wise to employ any systematic treatment until these symptoms were evidently present. It had not been his experience that the taking of systemic treatment before the appearance of the secondaries was productive of any harmful result, but it was simply a matter of waiting for the diagnosis to be sure. He thought it possible that mercury improperly taken might and did accentuate some of the symptoms and manifestations of the disease. He also called attention to the report of Ferguson on the matter of the patients treated and not treated for venereal diseases at the time of the Peninsular War. It was then found that those who had received the most energetic treatment did not do so well as those who had received a less strenuous and thorough dosing. It is true that at that time it was not considered that mercury had been given at all unless salivation had been produced, and the results from smaller doses of the drug caused Ferguson to alter his method of treatment very materially. The Doctor said that he told his patients the disease was one which could not be suddenly stopped, but that treatment properly directed could and would check and direct its life and make many of the unpleasant developments but transitory instead of grave and long-lasting lesions.

Dr. KUHLMAN said he had noticed in the reports of the French Academy of Sciences for 1849, the report of some man who stated that by injecting the serum derived from the blood of a syphilitic and drawn from the tissues above a gumma, he had, in sixteen cases experimented upon, cured ten and improved the condition of six.

Dr. ROBERTSON, in closing, said he did not entirely agree with the remarks of Dr. Krotoszyner in the matter of remedial measures. In the secondary stage, mercury and potassium iodid should be used, but in the tertiary stage potassium iodid was the only remedy he had found useful and to be relied upon. Certainly in the common case of tertiary gummata, potassium iodid was the one remedy always found to be efficacious.

Dr. KREUTZMANN brought up the question of

CLEAN AND PURE MILK FOR INFANTS,

and desired the opinion of the Society as to the advisability of entering into arrangements with some dairyman to operate his dairy upon sanitary principles and furnish milk as pure and free from contamination as it is possible to be. There were three sources of danger in milk for infants' food: improper changes of the natural order, stable dirt and disease germs. These could be reduced to a minimum or eliminated if the dairy could be properly looked after. A great deal of discussion was raised as to the advisability of the Society going into the milk business, and no conclusion was arrived at, the matter being left open for further consideration. The principal objection raised was that no dairyman would or could with profit comply with the regulations which would be made.

Chicago Medical Society.

Regular Meeting held Feb. 15, 1899.

Dr. ARTHUR D. BEVAN, president of the Society, occupied the chair.

Dr. N. S. DAVIS read a paper entitled,

WHAT ARE THE CHIEF DETERMINING CAUSES OF DEATH IN FATAL CASES OF PNEUMONIA AND TYPHOID FEVER, AND HOW CAN THEY BE MOST SUCCESSFULLY COMBATED?

At the outset he stated that a critic study of the subject will show that in proportion as the physician comprehends clearly the causes and pathologic conditions that determine a fatal result in diseases, the more accurately and successfully can he select and apply measures for their management. Correct knowledge of the physiology of all parts of the living body constitutes the only legitimate basis from which to trace deviations that lead to disease on the one hand, and on the other, to study the *modus operandi* of both morbific influences and remedial agents. There are structures in the human body, the physiology or functions of which are as yet imperfectly understood. Dr. Davis alluded to the ductless glands, the real function of which is only now clearly under active investigation.

When the discovery of pathogenic bacteria was first announced as the special and essential causes of the various acute febrile diseases, the universal tendency of the profession was to meet and nullify their action by antiseptics and bactericides; and on that basis enthusiastic sanitarians did not hesitate to predict a speedy suppression of the whole class of general fevers. However, it did not require the lapse of a single decade of years to demonstrate that bactericides strong enough to kill Eberth's bacillus (the bacillus typhosus), Klebs-Loeffler bacil-

lus, the pneumococcus, when introduced into the tissues or blood, were also strong enough to kill the patient.

Another step in the progress of investigation revealed the fact that it was only when the bacilli were brought in contact with some part of the living structures that they were able to evolve a specific ptomain, a toxalbumin or toxic agent which, entering the blood, disturbed the properties of the bioplasm of the blood and tissues and induced all the phenomena of general fever. There can be no doubt but that typhoid fever, diphtheria, pneumonia and other acute febrile affections are caused directly by specific toxic agents acting with sufficient intensity on the organized bioplasm of the blood and tissues to produce general metabolic disorder. These toxic agents may act with sufficient intensity to speedily arrest metabolism and cause death in a few hours in a case, for instance, of malignant scarlet fever, etc. It is well known that the ptomain generated by the bacillus of Eberth exerts its degenerating influence on the parenchyma, the structures of the intestines and other abdominal viscera; while the pneumococcus ptomain exerts its greatest degenerating influence on the pulmonary structures, and next on the corpuscular elements of the blood. The physician should ascertain the important structures on which such ptomain or ptomains act with greatest energy, and then find out by what processes of vital natural resistance they are chiefly destroyed or expelled. It is only by studies along this line that radical indications can be obtained for the selection of remedies, both hygienic and therapeutic, as will most effectuallyaid the natural processes of vital resistance to throw off the morbific agents or ptomains generated from without, or leucomains evolved from within the body.

Dr. Davis then discussed at considerable length the treatment of infectious fevers, mentioning among other things the maintenance of the vital processes in as active a condition as possible. The most efficient measures for accomplishing this are a judicious supply of food, abundance of fresh pure air, pure water, maintenance of thorough cleanliness with suitable bathing, etc. He believes that efficient application of these means alone would result in recovery of a large number of cases of typhoid, diphtheria and pneumonia met with in ordinary practice.

Dr. J. HOLINGER read a paper on the

TECHNIC OF ADENOID OPERATIONS,

in which he stated that a certain number of adenoids will recur after operation. They are those cases where the causes that originally brought them about persist after operation. Another cause for recurrence Dr. Holinger sees not so much in faulty instruments as in the position in which the head is held at the operation. He advises to bend the head forward until the chin rests on the chest, then he presses the Gottstein knife perpendicularly upward, while steadying the head with the left hand. The advantage of this over any other method is that the angle of the base of the skull with the vertebral column is converted into a regular, wide-open curve, which allows a more radical operation than with any other instrument. Another advantage is that the blood as well as the masses of the tumor will not get down the larynx or esophagus, but fall out through the mouth or the nose. He presented several X ray pictures which illustrated these points very clearly.

Dr. J. O. NELSON read a paper on

FILARIA SANGUINIS HOMINIS,

and presented two mounted specimens of the hematozoon which were in the chylous urine of the patient. The case is of peculiar interest, inasmuch as the patient has always been a resident of the States, having been as far South as Florida, but never having been in a foreign country. The history is as follows:

Mr. R., aged 66 years, has been a resident of Indiana for the past thirty years; previous to this he was a resident of Ohio. In the latter State he was afflicted with malarial fever of the intermittent type to a severe degree, and was only relieved by change of climate when he moved to Indiana. No date of infection can be discovered except mosquito poisoning, malaria, or the fact that nearly ten years ago he drank from a well which contained dead organic material and which caused him to immediately vomit, showing its extremely poisonous character. Early in 1898 the patient had a severe attack of catarrhal jaundice, which jaundice was very slow to disappear, and was attended with enlargement of the liver. Early in the fall of 1898 the patient was attacked with a violent impetigo, together with an extreme hyperesthesia of the skin. There was also developed a peculiar form of darting pains which may occur in any part of the body, or extremities, only lasting a few seconds, but being knife-like in character. The patient is a well-preserved man; has absolutely no specific history, and is of very emperate habits. Physical examination shows internal organs normal, except for a little tenderness over the gall-bladder. Lymphatic swellings exist on the ankles, with a tendency to break down, and abscess. The periosteum over both tibiæ was thickened; the ankles edematous. During the past summer the patient has developed a tendency to drowsiness to such an extent that he has trouble to keep awake during the daytime, this being entirely unnatural, as he is of an energetic and active disposition. Several times last summer he noticed that from morning until night he had no desire to micturate, and the edema of the ankles increased. About November 1 his first hematuria occurred in the evening, and the next day the urine was of a chylous character, but Dr. Nelson found no filaria in these specimens. The first specimen of urine which he examined was milky, specific gravity 1020, alkaline, and in each drop of the precipitated specimen from one to three active worm-like bodies, in constant motion, from $\frac{1}{100}$ to $\frac{1}{200}$ inch in length, easily examined under the low power, and these worm-like bodies he pronounced to be the embryos of filaria sanguinis hominis. Up to the present time he has not succeeded in finding the female parent worm.

SELECTIONS.

Catheterization of the Ureters.—This subject has been up for discussion at the Berlin Medical Society, at several meetings. Dr. Casper reported three cases where a good result was obtained by this procedure. In the first case the patient was a man in whom total anuria had been caused by incarceration of a calculus in the ureter, but after catheterization and injection of sterilized oil the calculus was discharged. In the second case the patient was a woman, 28 years of age, suffering from severe pyelitis, from which she recovered after the catheterization and the injection of a 1 to 1000 solution of nitrate of silver. The third patient was a man, 31 years of age, having a tumor of the right hypochrondriac region which at first was believed to be an echinococcus cyst, but on puncture was found to be the enlarged pelvis of the kidney, and by catheterization of both ureters it was ascertained that the urine from the right kidney was purulent while that from the left was normal. Catheterization and injection of solution of nitrate of silver caused fever, but nevertheless, after a series of injections, the pyelitis disappeared and the urine became normal. Dr. Casper pointed out that in cases where a free communication existed between a renal abscess and the pelvis of the kidney, injections of nitrate of silver may effect a cure. Moreover, extirpation of a kidney ought not to be performed until the soundness of the other kidney had been ascertained by catheterization. Dr. Casper's views were strongly opposed by Professor Israel who, in a very detailed statement, warned his hearers against attaching too much importance to this procedure. In 81 operations for pyonephrosis, performed by him, there were only three in which catheterization of the ureters might possibly have been of any use. His general conclusions were: 1, that catheterization gave little or no information as to the condition of the second kidney when nephrectomy was contemplated, as under certain conditions normal urine may be passed by the catheter although the kidney is seriously affected; 2, that affections of the second kidney were not in every instance contraindications of nephrectomy; 3, that catheterization was unable to ascertain the presence of the nature of an obstacle; 4, that the presence of blood in the urine obtained by catheterization might either be due to hemorrhage from the kidney or to injuries produced by the catheter; and 5, that the operation is liable to produce infection. In the ensuing discussion Dr. Kutner emphasized the impossibility of obtaining sufficient sterilization, as the optical apparatus was liable to be destroyed by the application of steam. Dr. Landau said that in gynecologic operations, as for instance in extirpation of the uterus for carcinoma, etc., the method was useful as a means of avoiding injury to the ureter. Of the other medical men taking part in the discussion, Professor Litten and Dr. Wossidlo opposed the method, while Professor Posner, Dr. Mainzer, and Professor

Dührssen expressed a more favorable opinion.—*Lancet*, January 28.

Vaginal Examinations.—In the *Medical Record* for February 11, Edgar discusses this subject. In experiments on thirteen primigravidæ and seventeen multigravidæ, he showed that when two examining fingers were used and the labia separated to their widest extent, contact of the fingers with the vulva and outer two-thirds of the vulvar canal could always be avoided. On the other hand, contact with the inner third of the vulvar canal and the margins or remnants of the hymen could occasionally be avoided in the seventeen multigravidæ, but never in the thirteen primigravidæ. It was further demonstrated that an ordinary glass douche-tube could, in most of the multigravidæ of over IIpara, after wide separation of the labia, be passed directly into the vagina without touching any portion of the vulvar canal or remnants of the hymen. With wide separation of the labia in the thirteen primigravidæ in only a few instances was it possible, without the use of the greatest precision, to avoid some contact of the tube with the borders of the hymen. The observations upon these thirty cases showed that in three cases the pubic hair was so long and abundant that by the widest separation of the vulva it was impossible to prevent some contact of the examining fingers with it before the ostium vaginæ was reached. Also that the depth of the vulvar canal varied greatly in both primigravidæ and multigravidæ; that in a few instances it was impossible, even with the widest separation of the labia, to avoid contact of the examining fingers with a considerable portion of the vulvar canal. "In private and even in hospital practice the rendering of these sensitive organs sterile, without shaving them, and the use of general anesthesia, is often difficult, if not impossible. Whether complete cleanliness is possible or not, it is safer as a routine to avoid contact with the external genitals as far as possible and pass the examining finger or douche-tube as nearly through the center of the introitus vaginæ as the conditions will permit. We should endeavor to render the vulva and vulvar canal aseptic, or as nearly aseptic as possible, by an abundant use of soap, water, and sublimate solution; absorbent cotton, gauze, or a very soft brush being used in order to avoid unnecessary abrasions. Cleansing and disinfecting of the external genitals should, we believe, always be carried out with the patient in the dorsal posture. We are convinced that cleansing and disinfection can not be properly carried out in the lateral position of the woman by reason of the relation of the anus and position of the buttocks. Our aim in the cleansing of the vulva and vulvar canal should be to remove offending material and, as far as possible, to render the parts sterile. Our attempts at sterilization, however, should never result in too much disturbance of epithelium or in abrasions of the skin or mucous membrane, which may serve as a nidus for immediate or subsequent infection, as a local septic condition may thus be converted into a general one." For vaginal examination with only partial exposure of the patient, his method is as follows: "The gravid or parturient woman is placed in the dorsal posture, with legs and thighs flexed and the latter separated. A clean bed sheet is thrown over the patient's body, reaching to the groins. A second sheet is so draped in the shape of a U as completely to cover both lower extremities, and the narrowed transverse portion of the U is gathered up above the symphysis. The draping is so arranged as to leave practically only the pelvic outlet exposed to view, no part of the sheet coming in contact with the external genitals. Genitals and hands having been cleansed, the physician sits, kneels, or stands at the side of the bed, and with the fingers of the free hand the vulvar canal is as nearly obliterated as possible by placing the outer border of the thumb upon the inner aspect of one labium and ends of the first and second fingers upon the inner surface of the opposite labium, and widely separating them. Then by the sense of sight the vaginal fingers are passed as nearly through the center of the opening of the hymen as possible, the greatest care being used to reduce contact of the examining fingers with adjacent parts to a minimum before the introitus vaginæ is reached. This method and position of the patient are preferable to examination by the sense of touch under a bed-sheet, and also to the lateral prone position and examination by the sense of sight, for the reason that it is most cleanly, most convenient and more in accord with the principles of modern asepsis. As in the lateral position, the patient need not be aware that there is any exposure. In multiparæ, entrance can in this way often be made directly into the vagina, and in primiparæ, unless the vulvar canal is abnormally deep, the examining finger or douche-tube need only come in contact with the inner third of the vulvar canal and the edges of the hymen, and even in these latter we have passed an irrigating tube directly through the orifice of the hymen without touching the edges until two-thirds of the tube had entered the vagina. When contact with the external genitals is unavoidable, as in forceps operations, the introduction of the hand or arm for version or of instruments for embryotomy, complete sterilization of the external genitals should be practiced, and since anesthesia is produced for these operations, the cleansing may be thorough and complete."

General Wood's Early Life.—Governor Roosevelt has contributed to the *Outlook* an interesting sketch of the early career of Gen. Leonard Wood, formerly a contract surgeon in the western territories: "General Wood was a Cape Cod boy; and to this day there are few amusements which he enjoys more than for himself to sail a small boat off the New England Coast, especially in rough weather. He went through the Harvard Medical School in 1881-82, and began to practice in Boston; but his was one of those natures which, especially when young, fret for adventure and for those hard and dangerous kinds of work where peril blocks the path to a greater reward than is offered by more peaceful occupations. A year after leaving college he joined the army as a contract surgeon, and almost immediately began his service under General Miles in the southwestern Territories. These were then harried by the terrible Apaches; and the army was entering on the final campaigns for the overthrow of Geronimo and his fellow renegades. No one who has not lived West can appreciate the incredible, the extraordinary fatigue and hardship attendant upon the campaigns. There was not much fighting, but what there was was of an exceedingly dangerous type; and the severity of the marches through the waterless mountains of Arizona, New Mexico, and the northern regions of Old Mexico (whither the Apache bands finally retreated) was such that only men of iron could stand them. But the young contract doctor, tall, broad-chested, with his light yellow hair and blue eyes, soon showed the stuff of which he was made. Hardly any of the whites, whether soldiers or frontiersmen, could last with him, and the friendly Indian trailers themselves could not wear him down. In such campaigns it soon becomes essential to push forward the one actually fitted for command, whatever his accidental position may be; and Wood, although only a contract surgeon, finished his career against the Apaches by serving as commanding officer of certain of the detachments sent out to perform peculiarly arduous and dangerous duty; and he did his work so well and showed such conspicuous gallantry that he won that most coveted of military distinctions, the medal of honor. On expeditions of this kind, where the work is so exhausting as to call for the last ounce of reserve strength and courage in the men, only a very peculiar and high type of officer can succeed. Wood, however, never called upon his men to do anything that he himself did not do. They ran no risk that he did not run; they endured no hardship which he did not endure; intolerable fatigue, intolerable thirst,

never-satisfied hunger, and the strain of unending watchfulness against the most cruel and dangerous of foes—through all this Wood led his men until the final hour of signal success. When he ended the campaigns, he had won the high regard of his superior officers, not merely for courage and endurance, but for judgment and entire trustworthiness. A young man who is high of heart, clean of life, incapable of a mean or ungenerous action, and burning with a desire to honorably distinguish himself, needs only the opportunity in order to do good work for his country."

PRACTICAL NOTES.

Rectal Temperature.—Unless the bulb is inserted a distance of ten centimeters, the temperature is inconstant and varies with the distance inserted, in children. The difference between the rectal and axillary temperature is .5 to .8 degree C.—*Deutsche Med. Woch.*, January 27.

Tuberculosis of the Kidney.—Friedjung (*Archiv für Kinderheilkunde*, Bd xxii, Heft 5) reports an autopsy where tuberculosis of the spine had invaded the kidneys and ureters. The child had had scarlatina with nephritis two years before, which began the tubercular predisposition of the kidneys.

Thyroid Treatment for Tardy Consolidation of Fractures.—Prof. H. Folet adds another to the cases related by Quénu and Reclus in which thyroid treatment for a few days hastened the formation of the callus to a remarkable degree and placed the patient on his feet. His case was an obliquely fractured tibia that refused to knit after two months' immobilization and cautious exercise, but it consolidated perfectly after two weeks of thyroid treatment, the leg in splints.—*Echo Méd.*, January 29.

Early Diagnosis of Cancer of the Lung.—Claisse has recently confirmed in two cases the existence of a neoplasm when there were no symptoms to indicate it, by the discovery of neoplastic elements in the sputa. He mentions that they are ordinarily very minute fragments, and the best way to distinguish them is to throw the expectorated matters into a large glass jar filled with water, and apply strong stains, such as thionin.—*Semaine Méd.*, January 25.

Quinin in Leucorrhea.—W. W. Hardwicke (*Lancet*, January 7) recommends quinin in simple leucorrhea, in the form of a douche or suppository, but prefers the latter mode of application as affording a better chance for intimate contact, etc. He prescribes three grains of the hydrobromate in a half-drachm suppository with oleum theobromatis, but says that the pessus quiniæ, containing the hydrochlorid answers as well. One insertion a day very soon manifests a good result.

Lambret's Treatment of Ulcerations of Cervix Uteri.—This method applies to all cases of ulcerations not extensive enough to require Schröder's amputation; and equally well to nulliparæ and multiparæ. The ulceration is extirpated and the defect covered by drawing the mucosa together and suturing it in a horizontal line with fine silk. The operation was brilliantly successful in his two cases, and he recommends it for general adoption. It differs from Munde's operation, as with the latter the sutures are perpendicular, and result in puckering up the cervix, necessitating dilation, etc. The horizontal suture has, on the contrary, a distinctly enlarging effect, especially valuable in case of a "barrel" dilatation.—*Echo Méd.*, January 29.

Diagnosis of the Heart.—Soltmann states that accidental anemic systolic sounds do not appear during the first three or four years of life, but are essentially characteristic of pronounced chlorosis at puberty. Cardio-pulmonary sounds, mostly systolic, are variable in their resonance and timber, as well as in their intensity and extent, increasing with stronger respirations and vanishing when the breath is held. A heart systolic sound at the point, with rising point, may be for years the only constant physical sign of mitral insufficiency. If there is a systolic sound which is not strongest at the point, in case of dilation of the heart and accentuation of the second pulmonary tone, there is reason to assume a myocardial origin for the sound.—*Deutsche Med. Woch.*, xlviii, 1.

Drainage of Bladder after Suprapubic Incision.—Wacobarr insures the constant drainage of the bladder by a simple contrivance illustrated in the *Revista Méd.*, of January 1. From a water jar on a mantel a tube descends and forks about a meter below, one end descending straight to a jar beneath, the other end fitting into a wide-mouthed bottle, from which another tube that passes into the bladder emerges. The water from the high receptacle falls drop by drop into the jar beneath through the right-hand fork of the tube. As each drop passes it produces a vacuum, the effect of which is felt through the other fork and secondary tube up into the bladder, where it entices out a drop of urine which runs down the secondary tube into the wide-mouthed bottle, in which it is easily examined. The lumen of the tubes is reduced to the necessary size by a couple of Pean's clamps, applied just above and below the fork. For lavage of the bladder the clamp above the fork is transferred below it, thus closing the right end; the bottle is removed and the left fork and secondary tube united.

Best Anesthetic for Infiltration.—Heinze and Braun have been making a thorough comparative study of the various local anesthetics, their concentrations and combinations, personally testing each by injecting it into their arms, not subcutaneously, but endermically, as Schleich recommends. They find that an 8 per cent. concentration of salt solution with distilled water, that is, isotonic with the cell fluids, does not cause pain during an injection and does not affect the sensibility; also that a certain proportion of salt prevents the formation of blisters. They conclude by announcing that cocain is the most effective of all local anesthetics, but as eucain B. equals it in respect to paralyzing the nerves and the absence of irritation, with the additional advantage that it can be boiled again and again without injury, they therefore recommend the following formula as the best under all circumstances for infiltration anesthesia: eucain B. 1 gm., cooking salt .8 gm., water 100 gm. The *Cbl. f. Chir.* considers their statements convincing, and that they deserve general attention.—*Virchow's Archiv*, cliii, p. 466.

Braatz' Method of Secondary Suture.—What seems a great improvement over the usual methods of secondary suture, after extirpation of a kidney, for instance, is illustrated in the *Cbl. f. Chir.* of January 28, as done by E. Braatz of Konigsberg. After the primary operation he prepares for the secondary suture before applying the dressings, by threading a needle with a double thread and drawing it through the tissues of one lip of the wound, leaving the loop projecting inside. One end of the thread is then passed through the loop and tied with the other end, thus forming a double ring of thread through one lip, very loose. Another double ring is then made exactly opposite on the other lip, and so on, until both sides of the wound are provided with a row of these double rings at the points where the final sutures are to be taken, not interfering in any way with tampons, dressings or examinations of the wound. When the time arrives for the final suture a thread the same size as the loop threads, and *wet*, is passed through the opposite loops, the fastenings are cut, and each end of the thread is drawn separately through the stitch-hole by the loop, from within outward on each side of the wound. The loops are cast aside as their mission is accomplished, and after each pair of loops has thus been replaced by a thread, the threads are tied in turn as usual and the wound is closed without danger or discomfort, with the stitches passing through the exact tissues desired, as established when the field of operation was fully exposed to view.

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SATURDAY, FEBRUARY 25, 1899.

AT THE regular meeting of the Board of Trustees of the AMERICAN MEDICAL ASSOCIATION, held in Chicago February 17, Dr. GEORGE H. SIMMONS, of Lincoln, Neb., was elected editor of the JOURNAL of the ASSOCIATION, and will assume its management about March 1.

THE MICROCOCCUS TETRAGENUS.

The micrococcus tetragenus is currently regarded a harmless, saprophytic organism as far as man is concerned, as may be seen by reference to any of the ordinary text-books of bacteriology. During late years, however, occasional observations have shown that it may assume a pathogenic rôle and acquire a considerable degree of virulence for man. Among the researches which have brought out the occasional pathogenic rôle of this microbe may be mentioned those of GAFFKY, of TEISSIER, and others. The most recent contribution to the study of this organism is by BOSC and GALLAVIELLE.[1]

These authors observed three cases of human infection with the micrococcus tetragenus, one of which is especially interesting. It concerns a man, 45 years old, who entered the hospital in a condition of great feebleness, accompanied with dyspnea and a yellowish expectoration which emitted a gangrenous odor. Examination showed a dull area in the lower left lobe, surrounded by a zone over which were heard subcrepitant râles; the prostration increased and death soon occurred.

The postmortem showed a softened gangrenous focus in the lower left lobe, containing a thick, viscid grayish, fetid fluid, from which the micrococcus tetragenus was cultivated in pure form, no other microbes being present. With the cultures thus obtained these authors made extensive morphologic studies as well as animal inoculations. The results may be summarized in the following conclusions:

The micrococcus tetragenus is not infrequently found in human tissues and may be pathogenic for man. It is readily cultivated upon all the ordinary media used in bacteriology. The cultures upon bouillon and agar grow the most rapidly and abundantly. It grows slowly in gelatin and in milk, which is not coagulated. Alkalinity favors the development of the micro-organism, while acidity hinders it. The most favorable temperature is from 37 to 38 degrees C.; above 40 degrees C. the vitality is rapidly diminished. The organism develops to a feeble extent in the absence of oxygen.

In shape the micrococcus tetragenus is very variable. It may form large cocci, diplococci, triads and tetrads, the latter constituting the typic form. All these forms may be present in the same medium, but the relative proportion of atypic forms varies according to the medium and according to the reaction, and in liquid media according as the cover-slips are made from the surface or from the deeper parts of the tube. The different forms may be arranged in groups or chains.

The micrococcus is surrounded by a thick mucilaginous capsule, which is demonstrable in the tissues as well as in the cultures. It is possible to follow the development of the principal forms of the micrococcus tetragenus. A single coccus may divide into four equal or unequal parts, so that the tetrad is formed at once, or there may be formed diplococci and triads. Later, all the elements of the tetrad, diplococcus or triad may divide at the same time, or only one of them. Subdivision in this irregular way may accordingly give rise to zoögleal masses.

The micrococcus studied by these authors is virulent for white mice, gray mice and guinea-pigs; it is also virulent for rabbits, but considerable doses are required. It is very feebly virulent for the pigeon, and has no action whatsoever upon frogs. The authors made inoculations under the skin, into the peritoneal cavity, into the pleural cavity, into the veins, and into the trachea. The effects of these various modes of inoculation are quite characteristic. There results a local production of a grayish, markedly viscid pus; general infection causes, at first, high fever and afterward subnormal temperature, rapid emaciation, and fibrino-hemorrhagic processes. The intratracheal injections result in the production of bronchitis, bronchopneumonia, as well as of a more extensive fibrinous pneumonia.

Successive passage of the organism through mice and guinea-pigs increases the virulence considerably.

[1] Archives de Méd. Expériment., January, 1899.

The most virulent cultures are obtained from the lesions in the lungs of the guinea-pig, following intratracheal injection. Filtered cultures injected underneath the skin, into the peritoneal cavity, or into the veins, produce toxic effects which vary with the dose and with the animal.

It is necessary to inject large doses several times into the veins of a rabbit in order to produce grave symptoms. The symptoms produced are high fever, emaciation, sometimes a little albuminuria. Efforts at immunization with toxic products have so far given uncertain, mostly negative, results.

The question of the unity or plurality of the diverse types of the micrococcus tetragenus has given rise to contradictory discussions. It will undoubtedly be acknowledged that the virulence is subject to so much variation that it can not be considered as a distinctive property. The chromogenic powers of the tetragenus also vary greatly, and the relation of the chromogenic to the non-chromogenic types is still an open question. ACHARD and GAILLARD[2] found a micrococcus tetragenus in a state of purity in the multiple foci of a case of pyemia. This organism possesses the characters of the micrococcus tetragenus septicus of BOUTRON and is non-chromogenic. They also isolated a chromogenic form which presents a yellow color (M. tetragenus aureus) from the lesions of a variolous eruption at the beginning of vesiculation. Both these organisms possess the typic tetrad form and arrangement, they are surrounded by a capsule in the affected tissues and stained by Gram's method. On comparing these two forms they learned that their action upon blood serum and upon milk differs precisely the one from the other; there are also differences in the fermentation products.

While the micrococcus tetragenus isolated by BOSC and GALLAVIELLE[3] does not coagulate milk or liquefy gelatin, CHAUFFARD and RAMON,[4] in two fatal cases of septicemia, found in one case a yellow tetragenus which liquefies gelatin but does not coagulate milk; in the other a white tetragenus, which coagulates milk but does not liquefy gelatin. They therefore raised the question whether these forms were not types representing the stages of transition of tetragenus to staphylococci, which liquefy gelatin and coagulate milk. The constant presence of the capsule of the tetragenus would seem to separate it quite sharply from the staphylococci, but it is quite apparent that the relations of the different forms of the pathogenic tetragenus to each other are still unsettled, to say nothing about the non-pathogenic varieties.

ADVANCE IN NEUROLOGY AND PHYSIOLOGY.

From time to time we have noted in certain issues of the JOURNAL the progress in the establishment of the Pathological Institute of New York City, in connection with the New York State Hospitals for the Insane. The founding of this excellent institution has been an object of great interest, both to the practicing physician and to those more especially interested in laboratory research studies.

We note that the former *State Hospitals Bulletin*, edited in greater part by the Institute, has been changed to the *Archives of Neurology and Psychopathology*. The change of name has many practical reasons for commendation, and we extend the right hand of fellowship to this new scientific publication. In Volume I, just issued, we find that the subject of "Correlation of Sciences" is treated at monographic length by Dr. Ira Van Gieson, director of the Institute, and in an unusually clear and thorough manner, It may be that the subject is not treated as concisely as some would perhaps desire, and that there is nothing especially new in the presentation, but we feel the glow of enthusiasm of the writer calling us anew to the ever-broadening field of psychiatry. We grasp the writer's central idea in saying that knowledge in all allied sciences should be placed under contribution to help us in solving the mystery of mind in health and disease.

It does not appear that any unintentional bias in laboratory work on the part of the author has caused him to unconsciously place undue stress on laboratory methods at the expense of careful clinical study; on the contrary, he points out very judiciously that laboratory work upon cases poorly and partially studied and carelessly written up, can be of little value. We hope to see in future studies from the Institute and State Hospitals, most painstaking and careful clinical observations of properly selected cases.

There is no question that asylum physicians would derive great benefit if they could regularly visit some of our large medical libraries to read what has been done already in their special line of research, and thus avoid contributing much mediocre literature. This plan is as important as laboratory study, and takes quite as much time and patience. We know of no more pressing need for asylum physicians at the present time. To consult and refer to three or four books or periodicals no longer constitutes a proper consideration of the bibliography of any given subject.

The time seems near at hand for the establishment of a large neurologic and psychiatric clinic in this country, embracing laboratory, library and extensive clinical work. The idea of establishing such a clinic, suggested by similar clinics in Germany, has recently received attention and elaboration by Dr. Frederick Peterson of New York, in his presidential address before the New York Neurological Society. We hope the scheme will be realized, and all students of the nervous system will rejoice to see the cause of neurology and psychiatry thus advanced.

[2] Archives de Méd. Expériment., January, 1899.
[3] Loc. cit.
[4] Arch. de Méd. Expériment., May, 1896.

THE TREATMENT OF EPILEPSY BY EXCISION OF THE CERVICAL SYMPATHETIC.

The mystery that surrounds the etiology and pathology of so-called essential epilepsy yet awaits solution. It may tentatively be conceived that the attacks are dependent upon nutritive disturbances in certain parts of the central nervous system, probably the cells of the cerebral cortex, and that these are brought about by the circulation in the blood of noxious substances, between which and the cells there exists a special affinity. Of the stability of such an hypothesis there is yet wanting definite evidence, but from analogy and reasoning, the conception can hardly be considered far-fetched. Some support of this view may be found in the fact that in many, if not all, cases of epilepsy the number and severity of the seizures can often be favorably influenced by attention to the gastro-intestinal tract, maintaining this as far as possible in a condition of relative asepsis. There is no specific treatment. The bromids do good in many cases, and harm in others. No higher commendation can be given to other remedies. It is, therefore, natural that the search for something better should go on industriously.

Some years ago it was proposed to control the cerebral circulation in epileptics by ligation of the vertebral arteries, in the hope of restraining the attacks, but the results were not successful. Subsequently, with a similar end in view, though with an opposite effect, it was proposed to divide or excise the sympathetic nerve. Numerous operations of varying character and extent have been performed by different surgeons, but the reports of the results have been somewhat conflicting. To the statistics already existing JABOULAY and LANNOIS (*Revue de Médecine*, Jan. 10, 1899) add an account of sixteen cases of epilepsy in which excision of the sympathetic nerve was practiced, with results that, to say the least, were not encouraging. In one case cure resulted, in five amelioration, while in nine the condition remained unchanged, and in one death resulted four days after the operation, in *status epilepticus*. In the cases in which improvement was noted hysteric symptoms were present, and it is to the influence of the operation on these that the good results are attributed. In the case in which recovery and in another in which improvement took place the pneumogastric nerve was also stretched, as well as in one case in which the symptoms were not affected.

These results do not encourage the hope that division or excision of the sympathetic nerve will prove in general a desirable means for treating epilepsy, nor was this to be expected from *a priori* reasoning. The operation was suggested on the assumption that the epileptic seizures were dependent upon cerebral ischemia, which it was hoped to overcome by division of the sympathetic, but such dilatation of the cerebral vessels as takes place probably disappears in the course of a few months, through the influence of the trigeminal nerve. There must be some other explanation for the results that have been noted, and while they have been disappointing on the whole, it must be admitted that the operation has proved capable of doing good in exceptional cases.

MEDICAL EVIL-DOERS BEFORE THE ENGLISH LAW.

The transgressors of the laws relating to medicine have been having a hard time in England. Notwithstanding the presence in Great Britain of a certain amount of quackery and medical irregularity, which has existed in all countries in all ages and presumably will continue for time to come as one of the conditions of poor human nature, we find of late that English law has descended with leaden hands upon evil-doers of this class. For the last few months the courts have taken cognizance of numerous medical offenses that come within the scope of the law. Moreover, the newspapers appear to have been diligent in giving the details to the public and in commenting thereon, both favorably and unfavorably; in numerous instances speaking of the presiding judge in terms that would hardly be tolerated in America. Readers of English papers have seen the judges spoken of as "inexperienced, biased, and not competent to give an unprejudiced opinion upon any point at issue." Trials for various irregularities and penal offenses still go on, however, in spite of what critics may think of the even-handedness of the justice meted out. Only of late a so-called medical man has been sentenced to a number of years of penal servitude for practicing in the East End of London without a diploma—or rather with another man's diploma—and for perjury in signing death certificates as a duly qualified physician, when he knew the same to be false. A judge has also spoken from the bench in the strongest terms against the "Medical Halls," which he declares are "bogies" that impose upon the unsuspecting poor and ought to be promptly broken up.

But it is in the matter of criminal abortion that our English cousins take decided steps, and this, too, not without reason. Since the small death-rate among the populace and low infant mortality have much to do with keeping up a strong and prolific race, the warning of GOLDSMITH as to the hastening ills of the bad-faring land "where wealth accumulates and men decay," may well be taken to heart by the jurist, the statesman, and the sociologist. In our own country the crime of abortion, alleged to be more prevalent in New England than in the Southern States, and among Protestants than Catholics, though often brought to public attention, is more familar to the general practioner who has to repair the work of the abortionist whom he can not prosecute for fear of creating scandal that may rebound upon himself.

Aside, though, from general remarks, in an attempt to study the whys and wherefores of the court findings

with the legal fiction before us that "justice can do no harm," one's reason gets so confused as to be in the greatest need of help. For instance, in scanning the accounts of several of the more important of these trials it is possible to start with the following premises: 1, a man named Collins, recently tried for the offense of abortion, was sentenced to a term of penal servitude; 2, a man named Whitmarsh tried for the same offense, was sentenced to be hanged; 3, a man named Wark, tried for the same offense, was sentenced to be hanged; 4, a woman, named Inglis, was tried for the same offense and discharged free; 5, the varying severity of the sentences appears to depend upon the manner in which the judge charged the jury; 6, the sentences on Whitmarsh and Wark were promptly rescinded, the latter in lieu of the death penalty getting a term of but three years.

In view of the foregoing the argument is advanced: 1. In common fairness, the prisoner ought to be allowed to select or ballot for his judges; 2. If he must take his chance, then why not allow the equal hazard of spinning a coin—heads, hang; tails, free? 3. Is the hanging sentence merely a grisly farce—a form—a joke—and one of Her Majesty's judges a modern court jester? 4. Is a court of justice a place where judge and counsel play a game for salary and fees, with prisoner for a pawn, or where one may expect even-handed justice? Or do the people who dispense justice hold it to be a matter of no concern to outsiders and, consequently, one with which they have no business to meddle?

Whatever view our readers may take of the argument, there is assuredly much in the subject calling for thought and action on the part of both general practitioners and those engaged in forensic medicine.

MEMBRANOUS ENTERITIS.

Fortunately, membranous enteritis, also known as mucous colic and tubular diarrhea, is not a common condition, as it is often most unyielding to treatment. The disorder may be looked upon as a secondary necrosis of the large bowel, characterized by paroxysmal attacks, principally in neurotic individuals, of abdominal pain, associated with the discharge from the bowel of shreds or masses or tubes of mucoid material. In some cases displacement of the abdominal viscera has been observed; and EINHORN (*Medical Record*, Jan. 28, 1899, p. 113) has recently reported a series of twenty cases, in twelve of which there was pronounced enteroptosis, which, it is believed, favors the development of the disease, though not its direct cause. A study of the gastric functions in twelve of the cases showed further that the motor activity was increased in eight, while five presented gastric achylia, although there was no concurrence between these two conditions.

The diagnosis of membranous enteritis is ordinarily a matter of no difficulty, and having been made, the treatment becomes the subject of serious consideration. Both the underlying conditions and the exciting influences will require attention. The diet thus becomes an important factor, and it must be made sufficient and nutritious. Solid food appears to be better borne than liquids. DA COSTA permitted the use of eggs, milk, bread, meat-juice, and such vegetables as did not pass unchanged into the stools, together with baths, and moderate exercise in the open air. VAN NOORDEN has recommended daily eight ounces of bread containing plenty of chaff, vegetables rich in cellulose, and fruits with small pits and coarse skin, such as currants, gooseberries and grapes. EINHORN insists upon an abundant and nutritious mixed diet that is not too coarse, including a generous amount of vegetables, with the object of training the intestines to dispose properly of customary food.

During a paroxysm it may be necessary to apply heat to the abdomen and to give a cleansing enema, possibly followed by codein or morphin or opium, with or without belladonna. In the intervals, enemas of from four to sixteen ounces of olive-oil at the temperature of the body should be given methodically at bedtime and be retained. The injection should be used nightly for three weeks, then on alternate nights for another three weeks, then twice weekly for four weeks; and finally once weekly for five or six months. The habit of a daily morning evacuation of the bowels also is to be acquired. Enteroptosis, when present, may require the use of a supporting abdominal binder, gastric achylia predigestion of food and the administration of hydrochloric acid, and the neurotic state iron, arsenic, strychnin, valerian, etc., and possibly the rest-cure.

ROLE OF THE LEUCOCYTES IN EXPERIMENTAL ARSENIC INTOXICATION.

The theory of phagocytosis, which was first advanced to explain certain phenomena in zoölogy, was applied to pathology, and at the present time its sphere is being extended to the explanation of certain problems in immunity by its strongest supporters, namely, METCHNIKOFF and his pupils. Heretofore the phagocytic phenomena observed in pathology have always been more or less closely connected with microbic infection; of late the reactions of phagocytes to purely toxic chemic substances are receiving attention.

In a recent communication BESREDKA[1] records the results of his observations upon the action of leucocytes on a very toxic combination of sulphur with arsenic (*tri sulfure d' arsenic*). This substance is of a clear beautiful yellow color, quite insoluble or nearly so, and is therefore readily recognized in the tissues. The experiments were made on the guinea-pig, the arsenic compound being injected into the abdominal cavity in an aqueous suspension. After having deter-

[1] Annales de l' Institut Pasteur, 1899, xiii, p. 49.

mined carefully the dosage, the same quantity was injected into animals of the same weight. It was found that 3.5 c.c. of an aqueous suspension of 5 centigrams of the arsenic compound in 20 c.c. of water would kill a guinea-pig of 350 grams in 48 hours. Shortly after the injection of a non-fatal dose the number of peritoneal leucocytes diminishes markedly, the diminution lasting for from ten to twelve hours, when a continuous and progressive hyperleucocytosis develops. A quarter of an hour after the injection, cover-glass preparations will show that the leucocytes contain in their interior a number of characteristic yellow arsenic granules, at the same time as there are large numbers of free granules floating in the exudate. In case of recovery the leucocytes gradually increase in numbers, whereas in case of death they become fewer and fewer. In cases that recover, the exudate swarms with leucocytes, whose protoplasm is filled with the yellow granules; the number of large mononuclear forms is especially noticeable; later the leucocytes and the granules disappear completely.

The mechanism of intoxication by this substance requires some explanation. It was found that a suspension containing fine granules will kill the animals much more rapidly than a suspension in which the granules are coarser. The toxicity appears to depend upon the solubility of the substance. Thus, if a membranous sac is filled with a large quantity of a suspension of the arsenic compound and placed in the abdominal cavity of the guinea-pig, death will follow in a few hours, from three to four, or nearly as rapidly as when the same dose of arsenic is injected directly into the peritoneal cavity. Death must depend, therefore, upon the diffusion of arsenic through the walls of the sac. It was also found that a suspension which is permitted to stand for twenty-four hours or so, will show actual solution of a small quantity of the substance: hence, contrary to general belief, the compound of arsenic and sulphur here experimented with is soluble not only in the body but also in the glass.

When one introduces this substance in form of a fresh suspension into the peritoneal cavity, a small part of it passes into solution, and it is this part dissolved which gives rise to the hypoleucocytosis, that is to say, exercises a negative chemotaxis. If the quantity of arsenic which is dissolved is so considerable that the leucocytes do not become accustomed to it, then the animal sooner or later dies. If the dose injected is less than the fatal dose, then the hypoleucocytosis after a certain time is replaced by a hyperleucocytosis and there ensues a marked phagocytosis. In this case the quantity of soluble arsenic is not large, as in the first case; the leucocytes become habituated to it, and there eventually follows a positive chemotaxis. When there is active phagocytosis the animal is saved. At first thought one might think this depended upon the rapid elimination of the solid granules taken up by the cells, but repeated examinations show that the granules persist within the leucocytes in the peritoneal exudate for as long as ten days after the injection. The hypothesis of rapid elimination must therefore be rejected, and there remains only one other interpretation, namely, that the phagocytes exercise some kind of antitoxic power over the arsenic granules, and that it is this action which eventually results in recovery.

The phagocytes do not act toward the arsenic granules as they might be expected to do toward any foreign body. If one injects into the peritoneal cavity, simultaneously with the arsenic, some powdered carmin, it will be found that the carmin will be taken up into the interior of the cells much more quickly and to a much greater extent than the granules of arsenic. The same phenomenon is observed even when the carmin is injected some time after the arsenic, showing that the leucocytes are perfectly capable of making selections. In case the carmin is injected for, say twenty-four hours previous to the arsenic, then the resistance of the animal to the latter becomes notably diminished, principally because the peritoneal leucocytes have filled themselves completely with carmin and remain insensible to the presence of arsenic. Under these conditions an otherwise non-offensive dose may result in death, due principally to the absence of phagocytic intervention.

It was found very difficult to artificially increase the number of phagocytes in the peritoneal cavity before the injection of the arsenic, because the most efficient arsenico-phagocytes were found to be the large mononuclear cells, and there is no ready method known by means of which their number can be readily increased. While it is easy to provoke a marked increase of the polynuclear leucocytes and other forms in the peritoneal cavity, the monoclear leucocytes are not attracted by the substances ordinarily used for inducing hyperleucocytosis. A polynuclear leucocytosis, however, is sooner or later followed by an increase in the mononuclear cells, which now act as phagocytes of the polynuclear cells.

Choosing a period of time after the injection of an emulsion of the leucotactic of aleuronat when the mononuclears would be expected to have reached their maximum number and then injecting a suspension of the arsenic, it was found that the animals thus treated resist the toxic effects much longer than the control animals.

The examination of the phagocytes containing the arsenic granules in their interior from time to time shows that the granules apparently undergo solution, with the formation undoubtedly of a new arsenic compound which is being formed in the interior of the leucocytes, and which is less toxic to the organism than the compound originally injected. Consequently the mere act of taking up the granules into their interior is not the most important of the functions of the leucocytes, but the species of intracellu-

lar digestion to which the granules are subjected is the essential act whereby the poison is rendered harmless.

Chemic analysis of the various organs at different periods after the injection of the arsenic shows that elimination begins at the time that phagocytosis commences to diminish, and that it takes place largely through the kidneys, as would be expected.

If we attempt to apply these observations to the interpretation of the various phenomena observed after infection and intoxication, then it would seem that they tend to overthrow certain objections against the doctrine of phagocytosis. One of the most important objections to this doctrine is that, while the phagocytes may perhaps take up microbes into their interior, yet the virulence of these microbes has already been diminished by the preliminary action of the serum and other fluids. As far as concerns the arsenic used in these experiments, this objection is untenable. It is hardly reasonable to suppose that the arsenic compound would suffer any attenuation whatsoever before it is taken up by the cells; as shown by the use of the sacs referred to, the animals are killed by the diffusion of the poison dissolved through the walls of the sacs. If the leucocytes are capable of taking up and neutralizing substances as toxic as this form of arsenic, then there would seem to be no good reason why they might not act in the same way toward virulent microbes and their products. The microbes secrete or excrete soluble toxins, and the solid arsenic acts largely by passing into solution.

BESREDKA holds in promise the early publication of his study of the rôle of the leucocytes in intoxication with soluble compounds of arsenic and of the immunization of animals against arsenic.

It will be seen that the action of leucocytes in infection and intoxication is beginning to appear in a rather new light, and that their action interests not the biologist and pathologist only, but also quite directly the chemist.

CORRESPONDENCE.

Neurasthenia and Its Treatment.

ATLANTIC CITY, N. J., Feb. 15, 1899.

To the Editor:—An article on "Neurasthenia and Its Treatment" (vide JOURNAL, Jan. 14, 1899, p. 72) refers to the frequent mistake in advising patients to go to Atlantic City, N. J., and further says: "Such places are fit only for well people, and in no way adapted to the sick."

As a practitioner in this city, I can not allow this statement to go unchallenged. It is true that many cases of neurasthenia are referred to Atlantic City with instructions to throw away medicines and allow the sea air, sea baths and hot baths to do the rest. Many such cases come to Atlantic City every year, never consult a physician, attend balls and all kinds of amusements and sports, eat every variety of hotel mixtures, take baths indiscriminately and run a race with their healthy neighbors, and then go home physical or mental wrecks—worse than before. What is the cause? "Atlantic City! It is not fit for sick people."

I am very glad that there are hundreds and thousands of invalids, convalescents and neurasthenics who come to this city by the sea, who live here properly and under explicit instructions from their home or local physician. These people *do improve* and gain in health. They sleep better, have better appetites, lose much of their depression, improve digestion and build up nerve force. Atlantic City is certainly classed as a fashionable resort in summer, winter, and all the year. If your patient comes for fashion, he can find it. If he comes for health and quiet, there are hundreds of private cottages and many hotels and boarding-houses where he may find every convenience and home comfort and an absence of gaiety. During the height of our season (July and August) the pleasure seekers are here; and for real quiet, neurasthenics and invalids must live in the section of the city least frequented by them.

Every case of neurasthenia should live as nearly by strict rule as possible. Strict attention must be given to diet, and under no circumstances should the patient be advised to eat generally of what comes on the table. Above all things, prohibit the mixture of many foods at meals and give a written, explicit diet-list best suited to the case. The patient must be regular in all things, even to the smallest detail. Directions must be given in regard to exercise. Our elevated, broad, four-mile-long board walk on the ocean front is a temptation to the average person, and the stimulus of the ozonized salt air often prompts longer walks than the patient can endure. If he tires of walking, rolling chairs can be obtained at almost any point during all seasons. These chairs are well supplied with robes and are moderate in hire. The board walk is always clean and dry, so that one may go out after a storm. Surf bathing is too tiring for most cases, and when taken, proper directions must be given in regard to the hour and the limit of time. Several hours will cause complete exhaustion. Ten to thirty minutes is the usual limit. Hot and cold salt-water baths can be obtained all the year, but must not be taken without direction. The average case does best by taking the proper bath every second day, two and one-half hours after breakfast. *Hot* baths are usually detrimental to neurasthenics. Late hours must be prohibited. Every moment possible must be spent in the open air between 10 A.M. and 4 P.M. in winter, and 9 A.M. and 7 P.M. in summer—not in merry-go-rounds and places of amusement. Massage, electricity, and sanatorium treatment can be obtained here if desired.

The water-supply of Atlantic City is now obtained entirely from underground springs and artesian wells. No surface water is used. It is as pure a water-supply as can be obtained, and is free from organic and nitrogenous matter. The sewerage system is first class. Typhoid fever and contagious diseases are almost unknown. In fact, Atlantic City is *the ideal sanatorium* of the East, if not of the United States. The city is located on an island of pure sea-sand and separated from the New Jersey coast by five miles of *salt* meadows and sea water. There are no fresh-water streams within six miles of the city, and malaria is unknown here. If the medical profession would take time for a trip to Atlantic City and see it as it is, I am sure they and their patients would both benefit. Much more could be said on this subject, but direct personal experience is best. Do not condemn Atlantic City before you have been here and have studied its real merits—not from the fashionable but the sanatorium standpoint. W. BLAIR STEWART, M.D.

ASSOCIATION NEWS.

The American Medical Association.—The following, concerning the ASSOCIATION, we clip from the *Lancet-Clinic* of January 28:

"This greatest of professional organizations will hold its next annual meeting in Columbus, Ohio, June 6-9. Of the meeting itself not only the medical profession and other good

people of Columbus become hosts of the ASSOCIATION, but in a wider sense the entire medical profession of Ohio are to be entertainers for the occasion. Columbus, the capital of the State, is centrally located and easily accessible not only from every part of the State, but from the entire United States. Located near the center of population, there will be an immense gathering—immense in size and of signal importance to the medical profession of Ohio.

"The meetings of the AMERICAN MEDICAL ASSOCIATION always produce a good effect upon the medical profession in the locality in which they are held. There is an attraction and stimulation to good work and to a bringing about of better conditions in every respect.

"There are more than 5000 members of the regular medical profession in Ohio, not one-third or even one-fourth of whom are members of the AMERICAN MEDICAL ASSOCIATION. This is a condition that is not at all creditable, and should be remedied at the ensuing June meeting. It is no exaggeration to say that not less than 2000 new members from Ohio alone should be enrolled, which may and should be accomplished through a renewed activity among members of the county societies. These organizations should be stirred up in every county in the State.

"The physicians of Columbus are alive to the great work they have before them, and will do their part handsomely in preparing for a generous and satisfactory entertainment of all comers, but they must have assistance from other parts of the State. Two years ago, at Philadelphia, there were 2600 delegates enrolled, and present an equal or greater number of visitors not delegates. There will be as many or more at Columbus. The work of the ASSOCIATION in its addresses, papers and Section work takes up much of the time of the members, but the social features are to be provided for, and on a scale that is not easy to be understood by those who have not had experience in such lines. In this particular work every Ohio man present should wear an Ohio badge to indicate his honorary membership of the committee on entertainment.

"Columbus is located midway between the East and West sections of the country, and but little north of the meridian dividing the North from the South. The great Western and Middle States are staunchly loyal to the ASSOCIATION; as much may be said of the South, but the East needs to show a better adherence than in the past. For some years the body of the profession in New York and of New England have in a great measure held aloof. This has not been to their professional interest, which many are beginning to realize. The accessible location of the meeting should bring large delegations from those States. Pennsylvania will be largely represented, as a matter of course. West Virginia should send 500 delegates, and Virginia an equal number. Kentucky and Indiana are hard by, and should be represented by not less than 2000 from each State. The president is well known and popular in all the Middle States; he is their man. The Southern States will send the largest delegation in their history, and so of the Middle and Northwest, while the Southwest will not be behind.

"Since the last meeting the Nation has terminated a great war, in which the medical department of the army was more prominent than ever as a war factor. This will add to the interest of the occasion. New territories have been acquired, involving tropic sanitary conditions, and a whole lot of questions of importance will come up for discussion and consideration.

"A glimpse at the above signifies an immense meeting as well as an important one. Ohio is a pivotal State, to which there is a natural convergence from every quarter, which is accepted as a very natural order of things, but it means also large delegations, which is what is sincerely wanted by the new host. The ASSOCIATION has met on other occasions in Cincinnati and Cleveland, but never before in Columbus.

"Delegates are particularly urged to bring their wives, daughters and sweethearts. Entertainment will be provided for every one of them.

"The Columbus meeting will be made a memorable one for its pleasant features. Railroad rates will be put down to the lowest notch. In the hotels there will be no overcharges. Accommodations are ample, and comfort will be provided for every one.

"The exhibit hall will be an exposition unsurpassed by any previous display; but, best of all, the city itself will be a host whose generous hospitality may be reckoned upon with absolute certainty."

SOCIETY NEWS.

Southwestern Iowa Medical Society.—This Society held a session at Creston, Iowa, February 16.

Dental Societies.—The Southern Branch, National Dental Association, and the Louisiana State Dental Society held a joint meeting in New Orleans, La., Feb. 9, 10, 11 and 13.

Erie County Medical Society.—At the meeting of this Society, at Erie, Pa., recently, the following officers were elected: President, Dr. Chapin; vice-president, Dr. Purcell; secretary and treasurer, Dr. Dunn, and censors, Drs. Reed, Dickinson and Ray.

Weber County Medical Society.—The newly elected officers of this Ogden, Utah, Society are: R. S. Joyce, president; H. J. Powers, vice-president; J. L. Dickson, secretary; J. S. Wadsworth, treasurer; H. J. Powers, R. S. Joyce and F. D. Bickford, executive committee.

Alumni Association of Tulane University.—At the annual meeting held in New Orleans, Saturday, February 11, Drs. Isadore Dyer and Hermann B. Gessner were elected to represent the graduates of the medical department on the Executive Committee.

North Chicago Medical Society.—The fifty-fifth regular meeting was held in the Newberry Library Building, Chicago, February 20. The program comprised a paper by Dr. R. B. Preble on "Pneumococcus Septicemia," with discussion by Drs. J. N. Bartholomew, G. F. Lydston, E. J. Senn and John Fisher.

Toledo Medical Association.—At the meeting of February 10, Dr. Samuel S. Thom read a paper entitled "Some Remarks on Fracture of the Elbow," and at the meeting of February 24, Dr. Heneage Gibbes, health officer of Detroit, Mich., late professor of pathology in the University of Michigan, read a paper on the "Duality of Phthisis," illustrating the same with lime light and lantern slides. Dr. Charles P. Wagar was recently elected secretary of this Association.

Western Ophthalmological and Otolaryngological Association.—The fourth annual meeting of this Association has just been held at New Orleans, La. While the attendance was not large it was thoroughly representative. In the absence of the president, Dr. J. W. Elliott Colburn, Dr. W. Scheppegrell presided. The annual address was delivered by Dr. Geo. T. Stevens of New York City, entitled "Historic Notes Relating to Strabismus and other Anomalies of the Eye Muscles." An afternoon luncheon and evening reception added much to the first day's interest. The election of officers for the ensuing year resulted as follows: President, W. Scheppegrell of New Orleans; first vice-president, M. A. Goldstein of St. Louis; second vice-president, H. V. Würdemann of Milwaukee; third vice-president, E. C. Ellett of Memphis; secretary, Thad C. Ewing of St. Louis; treasurer, W. L. Dayton of Lincoln, Neb.

Detroit Medical and Library Association.—At a meeting of this Society, February 13, Dr. E. L. Shurley read a paper entitled "Epidemic Influenza." The Doctor stated that the disease had been recognized and described as early as the year 1126, A. D., when it invaded Europe, but it first made its appear-

ance on this continent in the year 1600. The cause of the disease is the presence of the bacillus of Pfeifer and, as a factor, atmospheric vicissitudes. In describing the pathology of the disease the author said that the observations of Pfeifer and other bacteriologists seem to show that the bacillus actually invades the blood independently of any toxin, but added that this was as yet only problematic. The symptoms as enumerated by the author are sneezing, lachrymation, faucitis, bronchial catarrh, severe myalgia and inordinate vital prostration. Atypic cases are legion; but two symptoms, myalgia and undue prostration, are common to all cases. There is also in connection with the myalgia usually hyperesthesia of the skin. The complications of the disease are pneumonia, endocarditis, pericarditis, pleuritis, acute rheumatism, erysipelas and erythema nodosum. Inflammations of the middle ear are common complications and often even constitute the principal feature of the attack. Dangerous inflammation and suppuration of the nasal sinus frequently occur as well in this disease. Pulmonary consumption is the most frequent seqela of influenza. As to the diagnosis, he said the disease should be differentiated from common colds, rhinitis, follicular tonsillitis, cerebrospinal meningitis, measles and, in some cases, typhoid fever. The treatment outlined was that which is necessary in most infectious diseases, viz., to assist nature in eliminating the poison from the system, to modify the dangerous reactions which the ingress of the poison may generate, to sustain the vital and defensive powers and to combat all complications and sequelæ. Among the therapeutic agents beneficial were calomel, for its purgative and diuretic effect, early in the disease; application of heat for its diaphoretic action; coal-tar products with caution; quinin, salol, salicin, salicylic acid, phosphorus and strychnin; belladonna in the early stages; Dover's powder and codein for pain and distressing cough, and alcohol and digitalis when the patient shows signs of vital depression.

Illinois State Medical Society.—The preliminary program for the forty-ninth annual meeting of this Society, to be held at Cairo, Ill., May 16-18, 1899, includes the following papers:

The Country Doctor, S. C. Hall, Omaha.

Indigestion; its Causes, Effects and Results, C. G. Reagin, Duquoin.

Intestinal Antisepsis; Physiologic and Therapeutic, W. F. Waugh, Chicago.

Stomatitis Materna, J. Schneck, Mt. Carmel.

Variations in Malarial Manifestations, C. D. Center, Quincy.

Atypic Malaria in Children, with a Case in Point, Rosa Engelman, Chicago.

Some Aspects of Chronic Bright's Disease, A. R. Elliott, Chicago.

The Treatment of Uremia, A. R. Edwards, Chicago.

Further Observations of Tube Casts, I.N. Danforth, Chicago.

Alkalinity of the Blood in its Physiologic and Pathologic Relations, J. H. Salisbury, Chicago.

Agents and Methods Used in Alkaline Medication, J. A. Patten, Chicago.

Alkaline Treatment of Rheumatism and Allied Conditions, Ellen H. Heise, Canton.

Lithemia, A. M. Beale, Moline.

Erythromelalgia, W. J. Eddy, Shelbyville.

The X-Ray in the Diagnosis of Brain Lesions, Archibald Church, Chicago.

A Newer Pathology of Epilepsy, D. R. Brower, Chicago.

Surgery, Then Suggestion in Treatment of Hysteria, T. B. Keyes, Chicago.

Review of Work Done in Treatment of Mastoid Disease, N. H. Pierce, Chicago.

Are We Advancing with the Times? G. H. Rice, Sandoval.

Thymic Asthma, M. P. Hatfield, Chicago.

Treatment of Tuberculosis, Edwin Klebs, Chicago.

Drug Habits and the Medical Profession, Richard Dewey, Wauwatosa, Wis.

Chronic Ophthalmia; Some Observations as to its Cause and Treatment. Also the Relation of Chronic Ophthalmia to the Causation of Cataract, L. J. Schifferstein, Effingham.

Psycho-Physical Culture, W. Xavier Sudduth, Chicago.

Psychology vs. Medicine, J. T. McAnally, Carbondale.

Direct Massage in the Treatment of Glaucoma, J. A. Pratt, Aurora.

Diphtheria, with Some Notes on the Modern Serum Therapy, W. A. Matson, Monticello.

Rational Therapeutics, R. H. Henry, Peotone.

Treatment of Scarlet Fever, Herbert S. Worthley, Elwood.

Diagnosis of Locomotor Ataxia, H. T. Patrick, Chicago.

Post hoc, propter hoc, W. J. Chenoweth, Decatur.

Experience of a Country Doctor with Appendicitis, C. B. Brown, Sycamore.

1. Alveolar Sarcoma of the Rectum, Operation, Recovery. 2. Carbid of Calcium Treatment for Inoperable Carcinoma of the Rectum, E. M. Sutton, Peoria.

Report of Some Cases in Gall Bladder Surgery and Their Sequelæ, J. E. Allaben, Rockford.

When Shall We Operate in Country Practice, C. W. Hall, Kewanee.

Complete Prolapse of an Ovarian Tumor Through the Anus, Operation, Recovery, J. A. Baughman, Neoga.

Symphysiotomy, with Report of Two Cases, H. McKennan, Paris.

Galvanocaustic Treatment (Bottini's Operation) of Senile Enlargement of the Prostate, F. Kreissl, Chicago.

Indications for and the Advantages of Alexander's Operation, Rachel H. Carr, Chicago.

Molar Pregnancy, Carl E. Black, Jacksonville.

Why and When Operate for Appendicitis? W. F. Grinstead, Cairo.

Diagnosis of Ectopic Gestation Before Rupture, C. E. Manierre, Chicago.

Separation of Epiphyses in Relation to the Growth of Bones, F. A. Besley, Chicago.

Medical Ophthalmoscopy, W. O. Nance, Chicago.

Stricture of the Lachrymal Duct, H. W. Woodruff, Joliet.

Common Errors in Diagnosing Follicular Appendicitis as Typhoid Fever; Report of Three Cases, J. L. Wiggins, East St. Louis.

Pancreatitis, F. E. Wallace, Monmouth.

Premature Detachment of Placenta; with Report of Two Cases, E. B. Gilbert, Geneseo.

Influence of Biologic Research on Surgery and Medicine, W. J. Fernald, Rantoul.

Treatment of Dislocation of the Hip in Children, A. C. Wiener, Chicago.

Eclampsia—Causation and Pathology, C. B. Reed, Chicago.

Eclampsia—Diagnosis and Clinical Course, F. B. Earle, Chicago.

Eclampsia—Treatment, J. B. De Lee, Chicago.

Report on Recent Extirpations of the Stomach, with Experiments on the Dog, E. A. Matthaei, Chicago.

Operative Treatment in High Degrees of Myopia, Allen T. Haight, Chicago.

Operation for the Removal of Kidney Stones, A. D. Bevan, Chicago.

Major Anatomic Weak Points of Surgical Areas; Illustrated by Dissected Specimens, W. T. Eckley, Chicago.

Radical Operation for Inguinal Hernia, F. A. Jefferson, Chicago.

What is Eczema? J. Zeisler, Chicago.

Treatment of Accidental Wounds of the Male Urethra, E. J. Senn, Chicago.

Operative Treatment of Retroflexion of the Uterus, W. H. Rumpf, Chicago.

Malignant Tumors of the Adnexa of the Eye, W. H. Wilder, Chicago.

Adrenal Tumors of the Kidney, Bayard Holmes, Chicago.

Uterine Scrapings and Their Microscopic Diagnosis, Maximilian Herzog, Chicago.

Implantation of the Ureters in the Lower Bowel as Preliminary to Removal of the Bladder, F. H. Martin, Chicago.

Cyanosis Neonatorum, C. E. Paddock, Chicago.

Non-Surgical Treatment of Goiter, D. R. McMartin, Chicago.

Use of the Carbid of Calcium in the Treatment of Carcinoma Uteri, J. H. Etheridge (deceased) Chicago.

High-Forceps Operation, C. S. Bacon, Chicago.

Stricture of Anus Due to Orificial Surgery, Successfully Treated by a Plastic Operation, E. C. Dudley, Chicago.

Goiter, A. L. Bouffleur, Chicago.

Surgery of the Eye Muscles, J. E. Colburn, Chicago.

Otomycosis, E. T. Dickerman, Chicago.

Operative Treatment of Grave's Disease, Karl Doepfner, Chicago.

Peritoneal Adhesions, T. A. Davis, Chicago.

Surgeons' Interest in Rheumatism, F. W. Jay, Chicago.

Ambulatory treatment of Fractures, Charles D. Lockwood, Chicago.

Drainage and Washing out the Pleura in Empyema: Conflict of Methods and Opinions Among Eminent Surgeons, Edmund Andrews, Chicago.

Eye Strain and the Diagnosis of Ametropia by the General Practitioner, Cassius D. Wescott, Chicago.

Adipose Tissue as an Etiologic Factor in Hernia, A. H. Ferguson, Chicago.

Puerperal Surgery, Bertha Van Hoosen, Chicago.

Pelvic Reflexes, Byron Robinson, Chicago.

Results of Modern Vaginal Operations, Emil Ries, Chicago.

Report of 400 Operations by My Method for Radical Cure of Hernia, E. Wyllys Andrews, Chicago.

Tumor of Sclera, C. P. Pinckard, Chicago.

Resumé of Herniotomies, L. A. Greensfelder, Chicago.

Prevalence and Fatality of Alcoholic Inebriety, G. W. Webster, Chicago.

Nervous Complications and Medicolegal Relations of Alcoholic Inebriety, D. R. Brower, Chicago.

Etiology and Prevention of Pulmonary Consumption. (Essayist not selected.)

Medicolegal Aspect of Bright's Disease, Columbus Barlow, Robinson.

A Drop of Water, H. C. Fairbrother, East St. Louis.

The following have promised papers, but titles have not been received: F. L. Hall, Perry; M. J. Kearsley, Austin: J. B. Walker, Effingham: R. E. Beach, Vandalia; H. C. Adderly, Chester; J. B. Maxwell, Mt. Carmel; W. L. Suggett, Flora; W. G. Stearns, Kankakee; H. L. Jencks, Galena; S. W. Hopkins, Walnut; H. H. Gray, Galesburg; H. B. Favill, I. A. Abt, H. W. Manning, H. N. Moyer, A. E. Halstead, M. L. Harris, Norman Kerr, J. B. Bacon, J. B. Murphy, W. H. Allport, L. L. McArthur, D. A. K. Steele, C. A. Wood, H. P. Newman, E. Henrotin, Carl Beck and L. Hektoen, Chicago; O. Johnson, Quincy, G. N. Kreider, Springfield.

The address in the Section on State Medicine will be by A. R. Reynolds, Chicago; in the Section on Materia Medica by George F. Butler, Chicago; in the Section on Surgery by Denslow Lewis, Chicago. The annual dinner will take place on Wednesday evening. Railroad rates will be one and one-third fare for the round trip, on the certificate plan. Special rates at all the hotels will be given.

PUBLIC HEALTH.

Influenza in Christiania and Stockholm.—The official returns in the former city on February 12 give 2342 cases, and deaths of the week previous as 198. Reports from the latter city, of the same date, put the cases at 3194, and the deaths at 220.

Detroit Health Report.—For the week ending February 18, the number of deaths was 102; births 96. The number of persons who died from pulmonary disease was 49, of which 20 were pneumonia, 10 consumption and 6 la grippe. There are now only 4 cases of diphtheria in the city. The cases of smallpox have all recovered, with no deaths.

Laboratory Accidents.—In France the superintendent of a laboratory is held personally responsible for accidents that occur. Smoking is considered dangerous in a laboratory, as the cigar or cigarette may be laid down a moment and become contaminated, and then replaced in the mouth. A recent circular of instructions issued by the authorities, suggests that animals infected with a dangerous disease of short duration be placed in a jar instead of a cage, as the jar can afterward be filled with a strong antiseptic, more apt to be effective than the disinfection of a cage.—*Echo Méd.*, January 22.

Prevention of Tuberculosis.—The New York *Times* announces the following, from Berlin, February 12: "A committee representing the International Congress for the Prevention of Tuberculosis, which will sit in Berlin, May 24 to May 27 next, under the patronage of the Empress Augusta Victoria and the honorary presidency of the Imperial Chancellor, Prince von Hohenlohe, called yesterday at the United States Embassy to enlist American interest and co-operation in the undertaking. Dr. C. W. Stiles, scientific attaché to the United States Embassy, is preparing a report for the medical press on the purpose and scope of the Congress, whose main object is to devise ways and means of combating tuberculosis, especially as a popular scourge. Emperor William will entertain the members of the Congress."—(*Vide* Journal, p. 139.)

The Water-Supply of Two New York Boroughs.—According to the annual report of the commission of water-supply, the maximum daily supply of the system in Manhattan and the Bronx is 400,000,000 gallons. The reserve held in storage is 44,200,000,000, which, at the present rate of consumption, would be sufficient for the two boroughs for 182 days, without the natural flow of the rivers from which the supply is drawn. During 1898 the draft on stored water for the old city of New York was 12,330,000,000 gallons. The minimum daily consumption in that year was 238,000,000 gallons, in April, and the maximum 256,000,000 gallons, in September. The average daily consumption for the year was 243,000,000 gallons, or 121 gallons per capita.

Paraffin a Hygienic Covering for Floors.—A thin coat of boiling paraffin poured over a floor, following the grain of the wood, renders the floor proof against moisture, dust, acid or alkalies. It can be wiped up with a damp cloth or swept with sawdust moistened with an antiseptic, and then polished to a high luster with a dry cloth. The coat should be about two to three millimeters thick and well applied, and will last for years. One kilo of the paraffin, costing 1.80 francs, will cover about four square meters. The paraffin should melt at 65 degrees C. and boil at 300. It is boiled two or three hours before being applied. All holes and crevices should be filled beforehand, and Annequin recommends for this purpose a cement made of Spanish white 540 gm., strong glue 180 gm., sienna (hydrated oxid of iron) 150 gm., umber (black oxid of iron mixed with proto- and sesquioxid of iron) 110 gm., carbonate of lime 20 gm. It is applied with a putty knife and left for forty-eight hours to harden, when it is ready for the paraffin.—*Presse Méd.*, January 14.

Sanitary Operations at Havana.—The truly colossal task of putting into proper sanitary condition every dwelling in Havana has been inaugurated, Surgeon-Major Davis having hired one hundred resident physicians for a house-to house inspection, to compel obedience to the new regulations. All cess-pools under houses are to be closed and sealed. Garbage is to be removed daily. It is expected that the city will be in a fairly sanitary condition within three months, without underground sewerage. The old residents regard the health regulations as unnecessary and meddlesome, and even some well-to-do and well-informed persons, when making their objections, describe themselves as "healthy enough." A thousand persons are engaged in the work of cleaning the streets and public buildings. The quartermaster has already disbursed $10,000 since January 1, in the work of sanitation, and has drawn $13,000 from the custom house to meet the extra expenses in this line. It is a favorite trick of the soldiers when escaping from the camp without leave, to hire Cuban uniforms, so as to pass the sentries. Sometimes the clothing has been exposed to infection and the usual results follow. Nevertheless, there is so little sickness among the United States troops that twenty women nurses out of 100 originally employed, have been dismissed.

The Army Ration in Tropic Climates.—Dr. Louis Seaman, before the New York Academy of Medicine, discussed the above subject, setting forth that a much greater flexibility to the ration will be absolutely essential if Congress adopts the practical lead of England. Since our ration has been proved to be such an improper diet in the tropics, the question naturally presents itself, "What is a suitable ration?" Before proceeding to make suggestions in answer to this question, it will be well to point out more specifically the defects of the present ration, which consists principally of salted and fresh meats, bread or flour, canned beans and tomatoes, and a small proportion of cereals, with little provision for fresh vegetables. The experi-

ence of the British in Burmah and the West Indies has shown that the salt ration is the greatest predisposing cause of bowel complaints. As stated by Duncan, in the first Burmese war, for six and one-half months the troops had salt rations shortly after its commencement, and only 8 per cent. of them perished within ten months, principally of scorbutic dysentery, while in a regiment of Cameronians, 700 out of 900 were rendered unfit for duty from the same cause within a period of two months. In both instances these diseases were induced by an almost exclusively salted diet. He further said: "In the changes I have to suggest for feeding the army under tropic or subtropic conditions are the following recommendations: The beef component and the salt pork should be reduced one-half, farinaceous food being substituted therefor, salted rations should be issued at most twice during the week, fresh meats should be provided from animals slaughtered at the points where issued. Of the cereals, one of the best is hominy. Equally valuable is the ration of rice now issued, and which should be quadrupled in quantity. The white bean of this country should not be issued in the tropics. In its place should be used the black or red native bean. In addition to the above, dried fruits, especially apples and prunes, should be added to the ration. Could we have had such a ration as this at Porto Rico and Cuba, or if but a small percentage of the great outlay afterward expended in the care and treatment of the sick had been employed in procuring proper food before disease had developed, an enormous saving would have resulted, and the future pension rolls would have been kept within narrow bounds." Major J. M. G. Woodbury, who was a surgeon attached to the staff of Major-Gen. J. H. Wilson in the Porto Rican campaign, took issue with some of Dr. Seaman's statements, especially those regarding the mortality charged to the rations. Major Woodbury insisted that the deaths among the volunteers were more nearly chargeable to their improper cooking and filthy habits. Fully 40 per cent. of the deaths in Porto Rico, he said, were due to these causes. He instanced the small mortality among the regular troops, who were serving under the same general conditions, as indicative of the care which they took of themselves.

Health Reports.—The following cases of smallpox, yellow fever, plague and cholera have been reported to the Supervising Surgeon-General of the U. S. Marine-Hospital Service for the week ended Feb. 18, 1899:

SMALLPOX—UNITED STATES.

Colorado: Denver, November 2 to February 8, 23 cases, 1 death.

District of Columbia: Washington, February 7,6 cases.

Indiana: Dana, February 8, 1 case; Evansville, February 8, 1 case; Indianapolis, February 8, 1 case.

Louisiana: New Orleans, January 28 to February 4, 2 cases.

Maine: Auburn, Androscoggin Co., February 11, 1 case; Kennebec Co., at Waterville and Winslow, February 11, 8 or more cases.

Maryland: Baltimore, February 10, 1 case.

Nebraska: Omaha, January 28 to February 11, 4 cases.

New York: Dunkirk, January 28 to February 4, 1 case; New York City, February 4 to 11, 1 case.

Ohio: Cleveland, January 28 to February 4, 4 cases.

Texas: Laredo, January 21 to 28, 43 cases, 9 deaths; Laredo, January 28 to February 4, 69 cases, 14 deaths.

Virginia: Alexandria, February 7 to 9, 36 cases, 8 suspects; Norfolk, February 8 to 9, 15 cases, total on land, 132 cases.

Wisconsin: Appleton, February 7, 2 cases.

SMALLPOX—FOREIGN.

Africa: Lorenzo Marques, November 1 to December 31, 25 deaths.

Brazil: Bahia, January 7 to 21, 25 cases, 1 death.

Canada: Province of Quebec, January 26 to February 6, 11 cases, 1 death.

China: Hongkong, December 31 to January 7, 3 cases.

England: Liverpool, January 15 to 22, 1 case; London, January 15 to 22, 1 case.

India: Bombay, January 11 to 18, 1 death; Madras, December 31 to January 6, 1 death.

Ceylon: Colombo, December 24 to 31, 1 death.

Japan: Awomori Ken, December 9 to 31, 73 cases, 15 deaths; Chiba Ken, December 9 to 31, 1 case; Iwate Ken, December 9 to 31, 1 case; Nagano Ken, December 9 to 31, 1 case.

Mexico: City of Mexico, January 31 to February 4, 5 cases, 4 deaths; Nuevo Laredo, January 31 to February 4, 9 cases, 1 death; Vera Cruz, January 19 to February 2, 2 deaths.

Russia: Moscow, January 14 to 21, 6 cases, 7 deaths; Odessa, January 14 to 28, 10 cases, 2 deaths; St. Petersburg, January 7 to 21, 4 cases; Warsaw, January 24 to 31, 4 deaths.

Turkey: Constantinople, January 9 to 23, 28 deaths.

YELLOW FEVER—FOREIGN.

Brazil: Bahia, January 7 to 14, 2 cases, 1 death; Rio de Janeiro, December 23 to 30, 11 cases, 8 deaths.

Mexico: Vera Cruz, January 19 to February 8, 6 deaths.

CHOLERA—FOREIGN.

India: Bombay, January 11 to 18, 6 deaths; Calcutta, December 24 to 31, 56 deaths; Madras, January 7 to 31, 1 death.

PLAGUE.

India: Bombay, January 11 to 18, 308 deaths.

NECROLOGY.

CHARLES A. TUFTS, M.D., Dartmouth, 1872, died February 12, at Dover, N. H. He was president of the American Pharmaceutical Association for five years, and 77 years of age. He represented his district in the State Senate in 1861-62, and later earned the title of colonel, serving on the Governor's staff. He was for many years a member of the school board, being chairman from 1892 to 1894; clerk of the common council from 1858 to 1865, and a member of the board from 1868 to 1870; associate justice of the police court for nearly thirty years, and for fifty years moderator of the town and ward committee.

MOSES B. ALTER, M.D., Rensselaer, Ind., February 13, aged 61 years. . . R. L. Ashley, M.D., Perry, Ohio, February 13, aged 58 years. . . C. B. Clark, M.D., Kosciusko, Miss., February 7. . . J. L. Dillard, M.D., Richmond, Texas, February 10. . . N. C. Skinner, M.D., Greenville, Miss., February 14, aged 75 years. . . John Edwin Slicer, M.D., St. Joseph, La., February 8, aged 69 years. . . Cyrus Smith, M.D., Jackson, Mich., February 10. . . Otto Steinmeyer, Jr., M.D., Carlinville, Ill., February 9.

DEATHS ABROAD.

DR. HENRY JONES, or "Cavendish" of the *Field* and the *Queen*, who was an international authority on card games, died in London, England, February 15. He was born in London Nov. 2, 1831. His general education was received in Kings College School and St. Bartholomew's Hospital. After practicing surgery in London from 1852 until 1869, he devoted himself to literary and editorial work. He wrote treatises on whist, piquet, ecarté, billiards, tennis, croquet and many minor games. . . Prof. C. L. Studsgaard, Gothenburg, physician to King Christian of Denmark and chief surgeon at the Commune Hospital of Copenhagen, died February 15, at the age of 68. . . Joseph Coats, M.D., professor of pathology, University of Glasgow, Scotland, died from a malignant tumor in the neighborhood of the descending colon, aged 52 years. . . Prof. E. Gurlt, Berlin, aged 75 years, and one of the most prominent surgeons of Germany, especially noted for his historic works on surgery and medicine. His three-volume "History of Surgery," recently published, already ranks as a classic. . . Prof. J. A. Laboulbène, Paris, chair of history of medicine. . . A. Socin, professor of clinical surgery at Basle. . . Dr. Dumontpallier, Paris, aged 72 years, known by his works on hypnotism, neuropathology and gynecology.

MISCELLANY.

"A Plea for Alcohol."—The address of the author of "A Plea for Alcohol," in the JOURNAL of February 11, p. 317, was given as Lima, Ohio, erroneously. It should have been Marion, Ind.

Chicago Clinical School.—Dr. J. R. Pennington has accepted the professorship of rectal diseases in the Chicago Clinical School, formerly the West Side Post-Graduate and Policlinic.

Dr. P. S. Connor.—Dr. P. S. Connor, Cincinnati, Ohio, medical member of the late War Investigation Committee, was tendered a banquet by his medical and business friends, February 14.

Mosquito Theory of Malaria.—In item in our last issue, on "The Mosquito Theory of Malaria" (page 386) there occur two regretable typographic errors. Instead of two years, read ten years, and 1883 instead of 1893 as the date of Dr. King's paper.

Rush Medical College.—It is announced that Dr. Henry B. Stehman, superintendent of the Presbyterian Hospital, Chicago, will, until further notice, carry on the work of the late Prof. James H. Etheridge, in Rush Medical College.

Cook County Hospital Advisory Staff.—The County Commissioners recently passed a resolution placing the following physicians on the advisory staff of the hospital: Charles E. Humiston, Williams Holland, I. Friedman, Louis Mueller and Arthur M. Corwin.

Eclampsia: Correction.—In Dr. Bouton's paper in the JOURNAL of February 18, read "every two hours," instead of "every ten hours," in line 50, column 2, page 355, and omit "in," in line 15, column 2, page 356—errors occurring through loss of author's corrected proof in the mail.

Ohio Medical University.—Dr. C. M. Taylor has been promoted from the professorship of physiology to the chair of clinical gynecology, and Dr. Yeating Wardlow elected to the professorship of gynecology. Dr. Taylor succeeds Dr. J. F. Baldwin and Dr. Wardlow occupies the chair made vacant by the resignation of Dr. J. M. Dunham.

Embalmers' and Undertakers' Examination.—The fourth of these examinations, under direction of the Illinois State Board of Health, was held in Chicago, February 14. The examiners were: Drs. J. A. Egan, Springfield: J. C. Sullivan, Cairo; Ludwig Hektoen, Chicago; H. D. Sheldon, Frank Ketchum, and W. V. McKinstry.

Chicago Physicians Lecture.—In the course of free lectures being given in Chicago, under the auspices of Northwestern University, the University of Illinois Medical School and the Chicago Board of Education (vide JOURNAL, p. 325), on February 19, Dr. W. T. Eckley discussed "Animal Cells and a Community: An Allegory"; Dr. Bayard Holmes, "The Cost of Preventable Diseases."

Hospitals.—Fire recently damaged the Marine Hospital, Stapleton, Staten Island, to the extent of $400. . A cottage at the State Insane Asylum, Yankton, S. D., was recently burned with a loss of seventeen lives. . St. Joseph's Hospital, Syracuse, N. Y., netted $1000 from a recent testimonial performance. . . Miss Jean W. Wells has presented the Saginaw (Mich.) Hospital $3000 to endow a free bed.

Hysteric Nasal Insufficiency.—A curious case is related by Lermoyez: a young girl with hypertrophied turbinate bones preventing nasal breathing was operated and the nasal passages cleared perfectly, but she found it impossible to breathe through the nose, and would suffocate if a hand were placed over her mouth. The new synergy of muscular actions required for nasal breathing called for an attention and sustained effort of the will, of which she was incapable.—*Presse Méd.*, January 25.

Oophorectomy in Mammary Cancer.—In the *Brit. Med. Jour.* of Oct. 2, 1897, Boyd reported his observations on five cases of cancer of the breast in which he had performed double oöphorectomy. He now presents further notes (*Brit. Med. Jour.*, Feb. 4, 1899) and believes that in some cases removal of the ovaries does induce the disappearance of the cancer tissue. In summing up his seven cases he considers the effect of oöphorectomy indubitable in two, probable in two, and absent or very doubtful in three.

Cryoscopy of the Urine.—Bouchard has been establishing the average weight of the molecule in the constituents of the urine, finding that it is smaller as nutrition is more perfect (sodium chlorid not included): 60 to 63 in health, but in disease, 68 to 112. Disturbances in the liver increase the weight of the molecule; it is large in gout, but comparatively small in acute articular rheumatism.—*Semaine Méd.*, January 18.

Modifications of Toxins in Alimentary Canal.—Charrin and Levaditi have found that a toxin inserted in a small portion of the intestine of a guinea-pig, ligated at each end and replaced in the abdomen, loses part, if not all, of its tetanigenic properties in fifteen to twenty hours. They ascribe the modifications to the action of the intestinal bacteria, digestive secretions, etc.—*Semaine Méd.*, January 18.

Immunity to the Effects of Morphin.—Gioffredi has experimentally established that by gradually increasing doses the system can be accustomed to morphin, almost to the extent of immunization. The serum of dogs thus immunized possesses a high antitoxic power, sufficient to protect against twice the fatal dose animals particularly susceptible to morphin, such as young cats. This antitoxic property is not chemic, as it does not appear *in vitro*.—*Munich Med. Woch.*, January 17.

An Heroic English Surgeon.—Information has been received of the death of a ship's medical officer owing to a very noble act. The medical officer in question, whose name was Murphy, was serving in a steamer plying between Canton and Hongkong. On the voyage a Chinese child fell out of his mother's arms into the sea, which was running very heavily at the time. Dr. Murphy immediately plunged in after the child, but the sea was so heavy that it was two hours before he was picked up and he never recovered from his exertions.—London *Lancet*.

State Sewerage Commission.—According to the *Outlook* for February 18, a bill has been introduced in the Connecticut Legislature for the appointment of a State Board of Sewerage Commission. The commissioners are to investigate the subject of a system for disposal of sewerage in the State and prevent the pollution of the inland streams, and without their consent no system of sewerage can be built in the State. They will also have authority to order a change of any system now in existence, when in their judgment such system pollutes inland streams.

Diphtheria Toxins and Antitoxins by the Mouth.—Paltschikowsky found that animals fed by the mouth with maximal doses of toxin, succumbed rapidly and no antitoxic property could be discovered in the blood. Serum submitted to the action of the gastric juice does not seem to be affected by it, and yet it fails to protect the animal when administered by the mouth. He considers it probable that only minimal amounts of the serum are absorbed by the stomach and intestines, and that it is either destroyed or eliminated in some other way.—*St. Petersburg Med. Woch.*, Dec. 31, 1878.

Anthrax Immunization.—In imitation of what Wassermann and Takaki have accomplished with an emulsion of brain matter and tetanus toxin, Aujeszky has succeeded in protecting rabbits against otherwise fatal anthrax infection with a 3 per cent. spleen emulsion. Injections of the spleen emulsion immediately after anthrax infection saved 25 per cent.; the rest succumbed, but much later than the control animals. A fresh mixture of the emulsion and anthrax bacilli *in vitro* delayed the onset of the infection, and when two to six hours old, pre-

vented infection altogether. White mice were not protected by spleen emulsion derived from rabbits.—*Cbl. f. Chir.*; *Cbl. f. Bakt.*, xxiv, 8.

Toxicity of Urine in Skin Affections.—Colombini states that the toxicity of the urine is diminished by more than half in eczema rubrum; evidently the toxins are eliminated by the skin in these cases, which explains the dangers of a sudden cure of an eczema of this kind. He also suggests that the eczema may be due to the non-elimination of the toxins by the kidneys. In other cutaneous affections suppressing the functions of the skin, the toxicity of the urine is increased. In both cases the urine returns to normal after recovery from the dermatosis.—*Presse Méd.*, January 25.

Histology of Foot and Mouth Disease in Man.—The removal of the infected foci from the hand of a butcher's assistant, afforded an opportunity for the first comprehensive study of the histogenesis of the case. The poison, entering by a small laceration, first caused an intense hyperemia of the superficial vessels and a profuse exudation which infiltrated all the layers of the skin, while each layer commenced to proliferate energetically, the epidermis last. The altered conditions of nutrition, in time, led to a fibrinoid colliquation of the separate layers of cells of the epidermis (peripheral portions), followed by restitution (central portion), terminating in a clinic picture resembling parakeratosis.—*Derm. Ztft.*, December, 1898.

Parachymosin: A New Rennet.—It is announced from Professor Hammarsten's physiochemic laboratory in Upsala, that the rennet of the pig's stomach is a different substance from ordinary chymosin. As the calf's stomach contains chymosin and only chymosin, so the pig's stomach contains "parachymosin" and only parachymosin, and in the tests and experiences made, the human stomach was found to contain parachymosin and only parachymosin. It is present in pepsicum siccum which is usually made from pigs' stomachs. The difference between the two rennets is evident by their behavior during digestion, dilution, with $CaCl_2$, when heated and when combined with an alkali.—*Deutsche Med. Woch.*, January 19.

Appeal to Possessors of Antique Surgical Instruments.—The Paris Exposition of 1900 is making a feature of an exhibition of articles dating from the last century, to parallel the contemporaneous exhibits. Those in charge of the exhibit of surgical appliances appeal to collectors, museums, and all possessors of rare or unique surgical instruments and appliances to loan them to the Exposition. Each collection will have a special place; separate articles will be arranged in cases, all with the name of the owner, and a catalogue will be issued of the complete collection. A free pass will be given owners of historic articles deemed sufficiently valuable or interesting by the Committee.

"Anorganic" Heart Sounds.—A long series of experiments with dogs at Talma's clinic, Utrecht, in morphium narcosis, demonstrated that oligemia is only rarely the cause of anorganic heart sounds, but that hydremia favors their production, particularly hydremic plethora, in the conus arteriosus of the right ventricle, and likewise in the rest of the ventricle, in the left ventricle and in the arteries. He also found that quinin produced a dilatation of the heart cavities with heart and arterial sounds, such as are noted in chlorosis. Diminishing the frequency of the heart-beat, that is, filling the ventricle fuller, favors the production of heart systolic sounds. Increasing the systole increases the sounds or may originate them.—*Vienna Klin. Rundschau*, Dec. 25, 1898.

Gonorrhea and Sterility.—Benzler asserted a year ago that seventy-seven out of a hundred men who have had double epididymitis have a prospect of offspring, but later investigations lead him to modify this statement with the addition: "if the wife is not rendered sterile by being infected by the husband." He found that out of 474 married soldiers who had had gonorrhea during their military service, 13.5 per cent. were sterile; 16.5 per cent., one child. Of those who had had double epididymitis, 42.7 per cent. were sterile; 20.8 per cent. had one child. Of those with single epididymitis, 23.4 per cent. were sterile; 13.5 per cent., one child. With uncomplicated gonorrhee, 10.5 per cent. were sterile; 17.3 per cent., one child.—*Cbl. f. Chir.*, January 21.

Influence of Fever on the Production of Antitoxin.—Lemaire has been studying this subject with dogs immunized with dead cultures of very virulent bacillus coli. One set received a dose of antipyrin sufficient to prevent fever; another set was treated with ice-bags as soon as the temperature began to rise, and it was kept down, and in a third set the infection was allowed to take its usual course. Immunity was obtained in each set, and the immunizing substances developed equally well in all three. It follows that fever is not necessary to the formation of anti-infection substances. His experiences as a whole tend to establish that fever is rather injurious than useful to the organism, and also that antipyrin or applications of ice increase the resistance of the animals to the toxins of the bacillus coli.—*Presse Méd.*, 1898, v, p. 225.

Commotio Spinalis.—H. Schmaus summarizes our present knowledge of concussion of the spinal cord or commotio spinalis, as follows: It must be distinguished from concussion of the spine, which may produce lesions in the cord by crushing, tearing, stretching or hemorrhage. The idea of an essential commotio spinalis has lost ground of late, as there is not a single case of pure, uncomplicated commotio spinalis on record that will stand criticism. But there are cases in which a commotio spinalis is certain, combined with other injuries, although it may be impossible to determine the latter with precision. It has been experimentally established that a direct traumatic necrosis of the nerve elements follows commotio spinalis and also that the spurting liquor cerebrospinalis lacerates the tissues in the concussion.—*Munich Med. Woch.*, January 17.

Syphilitic Pseudo-paralysis.—Moncorvo relates seventeen observations of hereditary syphilis causing pseudo-paralysis of one or more members in children under three months (Parrot's disease). In fourteen out of the seventeen there were other manifestations of hereditary syphilis. The paralysis is due to the lack of continuity in the bone levers owing to the separation of the intermediate cartilage consecutive in turn to the dystrophy of the spongy tissue of the extremity of the diaphysis. Edema is frequently noted at this point, and a crepitation like that of a fracture. The point is very painful to pressure. He mentions that the arm or leg lifted up drops like the tongue of a bell when released. The muscles are not affected. All his cases were submitted to a vigorous specific treatment and rapidly recovered, although Parrot asserted that every case of this affection terminated fatally.—*Ann. de Derm.*, December, 1898.

Hospital Work in Persia.—Of the work of the Presbyterian Hospital in Oroomiah, Dr. J. P. Cochran writes in the *Observer* that more than the usual number of Moslems have been treated during the year, and most of them have gone away grateful and under a deep impression of the spirit of religion which impels its followers to provide such means for the welfare of all nationalities. Among the outside patients have been leading people of the place, governors, chief Moslem ecclesiastics, and many Khans. One of the latter class, high in rank, a lifelong friend of the missionaries, was one of a small class of Khans who took a few lessons in English with Dr. Austin Wright. The members of that class, without exception, largely as a result of that intimacy forty-five years ago, have been courteous, kind and helpful to the mission. One of them gives twenty horse-loads of wheat to the hospital annually.

Novel Feature in Artificial Air.—At the meeting of the Académie of Médicine, M. Laborde read a paper on a chemic substance which by its simple contact with air vitiated by respiration regenerates it completely, restoring to it its first qualities. In other words, this substance absolutely removes the carbonic acid from the foul air, as well as the water vapor and irrespirable products, and renders to it in exchange the exact quantity of oxygen required. From the first series of experiments it was discovered that six or eight pounds of the substance would keep alive, in a space hermetically sealed (a submarine boat or a diving bell, for instance), a healthy man during twenty-four hours. Besides, the product was capable of rendering good services to medicine, as with a few grams of it a dozen liters of oxygen could be obtained instantaneously.—Paris correspondent: *Med. Press and Cir.*, February 1.

Sudan III as a Stain for Tubercle Bacilli.—Dorset (*N. Y. Med. Jour.*, February 4., p. 148) speaks highly of Sudan III as a stain for tubercle bacilli, attributing this quality to its affinity for fat, which it has been shown the bacilli contain in considerable amount. In staining pure cultures cover-glass preparations are made and fixed in the ordinary way and then immersed in a cold, saturated 88 per cent. solution of Sudan III for five minutes. The excess of stain is removed by washing in several changes of 70 per cent. alcohol for five minutes. The bacilli are stained better if left in the Sudan III for ten minutes. The bacilli are stained a bright red and present a distinctly beaded appearance. Methylene blue may be used as a counter-stain. Stained sections of tissue may be dehydrated with absolute alcohol, cleared with clove-oil and mounted in Canada balsam. Smegma bacilli are not stained by Sudan III.

The Diphtheria Bacillus in the Organs.—Some recent research establishes that the Loeffler bacillus does not penetrate much beyond its entering point, and that it does not find its way into the blood and organs, except when it is associated with the staphylo-or streptococcus. In this case it is found in the blood and organs in abundance. These facts confirm Barbier's theory that the diphtheria bacillus does not find a ready foothold in man, and that it requires a soil prepared by some other infection. The importance, therefore, of keeping away from diphtheritic infection persons already affected by some other infection becomes more and more evident by these later researches (*Rev. Gen. de Path. Int.*, January 5). When the streptococcus is associated with the diphtheria bacillus, the general condition is serious; there are apt to be cardiac accidents, very rapid and irregular pulses; the patient has diphtheria and also septicemia. The local treatment should be intensive and serum injected early and often.—*Rev. Gen. de Path. Int.*, January 5.

Coincidence of Malarial and Typhoid Fevers.—As the result of 800 examinations of the blood of soldiers at Camp Wikoff, Ewing (*N. Y. Med. Jour.*, January 28 and February 4) concludes that typhoid fever is to a large extent incompatible with active malarial fever, and that during the course of the former the latter infection is usually suppressed. The persistence of old malarial infection may alter the course of typhoid fever through the anemia, but active sporulation of the malarial parasite rarely occurs during the course of established typhoid fever. On the other hand, as malarial paroxysms often appear during convalescence, a scanty growth of the parasite must often persist during the course of typhoid fever, and it is possible that some of the irregularities of temperature observed in these cases are referable to this partly suppressed growth. The anatomic evidence of a postmortem examination is much needed to demonstrate the existence of typhoid fever in cases showing active malarial paroxysms.

Physicians Honor Dr. Garcelon.—The final session of the American Medical Association was held yesterday morning at 61 Market Street. A plan of the policy of the Association for the year was adopted, and the newly elected secretary and editor of the Journal of the society, Dr. Simmons, was inducted into office. At noon an adjournment was taken, and the delegates repaired to the Sherman House, where a dinner was served in honor of Dr. A. Garcelon of Lewiston, Me., the patriarch of the Association. Dr. Garcelon is 87 years old. He was war governor of Maine, and later was re-elected. He has always been a leader in the affairs of his State and in professional life in Lewiston. He has practiced medicine for sixty years, has edited influential journals and written several books on therapeutics. His mind is vigorous and clear and he can make a speech with the eloquence of a spellbinder. At the dinner he entertained the other trustees with reminiscences of the early life of the Association, of which he was one of the organizers.—*Times-Herald*, Chicago, Feb. 19, 1899.

Why Quacks Advertise in Religious Papers.—Mr. Moody has an anecdote that will serve to show why it is that the pernicious advertising of quackery thrives so well in the so-called religious journals, namely, that "sick sheep" will heed the call of anybody. "Once upon a time a tourist was journeying through the Holy Land, and heard that there was a shepherd who still kept up the custom of calling his sheep by name. He went to the man and said: 'Let me put on your clothes, and take your crook, and I will call them and see if they will come to me.' And so he did, and he called one sheep, 'Mina, Mina,' but the whole flock ran away. Then he said to the shepherd: 'Will none of them follow me when I call them?' The shepherd replied: 'Yes, sir, some of them will; the sick sheep will follow anybody.'" And blessed be those who, seeing the peril that awaits the sick sheep, and all other feeble folk, will refuse to allow the loud-shouting quack to shout through the columns of their newspapers.

The Reason of the Bicyclist's Hump.—Dr. Eifer, a French physician, has been experimenting with riders to discover the reason for the humped-back "scorchers," and concludes that his curvature-habit, so much a subject of ridicule and comment, is but obedience to the law that the lungs seek to draw in air with the greatest ease. Quick, jerky breaths are to be avoided if the play of the lungs is to be maintained. Dr. Eifer further says that speed is an obstacle to respiration, and not only advocates nasal breathing, but explains lowering the head as presenting a shield against which the shafts of air may beat harmlessly. As speed increases, the cyclist lowers his head still more, until at his maximum of effort his nose is almost parallel with the course. His aim is not reduction of the wind resistance of the body, but a device to avoid swallowing the air, or in common parlance, to become "winded." Thus the wedge as exemplified in the person of the rider, contributes only to the ready purpose of oxygenating the air demanded by the lungs.

Why I Became a Physician.—"It was the longing for certainty. Personally I should have preferred the abstract sciences, but there was so much dubiousness about them that I turned away, hungry for something positive. I felt that I must be doing something—I was ashamed not to be taking part in what is going on, as I should be on a boat in danger in a storm. . . I am an agnostic and do not pretend to say whether there is or is not a God, a future life, but as I thought it over it seemed to me that medicine harmonizes with all theories, even the most advanced Christian. . . What is duty? To help the suffering. Suppose the other theories prove true, to what would morality be reduced? To an instinct that impels us to associate with others, to help our neighbors and be helped by them, confronting a hostile nature. Who accomplishes this task better than the physician? He is the altruist *par excellence*. He is right, whichever metaphysic premise we accept. And this is so true that from the day when I first passed the threshold of the hospital, I have experienced a peace unknown

before. I have the evidence that intellectually and morally I am treading on firm ground."—Paul Bourget: *Semaine Méd.*, January 18.

Pseudo-Diphtheritic Affections.—Several articles have appeared recently in our foreign exchanges describing affections of the throat with formation of false membranes, in which the only micro organisms found were Friedländer's or Vincent's bacilli. The characteristics of the former are the benignity of the affection and its persistence, six to seven months the average, with only a slight general disturbance at the onset. The membrane is confined to the tonsils usually and resembles follicular tonsillitis in several respects. In the acute form recovery is complete in five to seven days. Nicolle and Herbert report ten personal cases and nine in literature, of which fifteen were the chronic form. Out of 2500 examinations they found only the Friedländer bacillus in fifteen cases, Vincent reports sixty cases on record in which the throat was affected with the formation of false membranes on an ulcerative surface, dysphagia, adenitis and fever, suggesting true diphtheria, but investigation disclosed a spindle-shaped bacillus in the membranes in immense quantities, usually alone, occasionally associated with the staphylococcus. It has been found associated with other microbes and even with the diphtheria bacillus in a few very rare cases.—*Presse Méd.*, January 14 and 25.

Saline Solution in the Hemorrhage of Typhoid Fever.—The value of saline injections in hemorrhage and collapse from other causes is now well attested, though they are not, perhaps, as widely used as they ought to be. Not many cases of their use in hemorrhage in typhoid fever have been published. In the *Intercolonial Medical Journal of Australasia*, Dr. J. Ramsay has published the following case: A man, aged 46 years, had severe typhoid fever; the temperature was 104.2, and the pulse 100. He passed 8 ounces of blood and on the following day 10 ounces, and a few more ounces with the stool. The temperature fell to 97.6, the pulse was from 70 to 80, the respiration was sighing, and the skin was clammy. Brandy, strychnin and digitalis were given without effect. The pulse became weaker, and unconsciousness and lividity of the hands and ears supervened. He was practically moribund. Two pints of normal saline solution at 100 degrees were injected into the median cephalic vein. Toward the end of the injection the pulse improved in volume and the general appearance became better. But the effect was only temporary. The patient was livid, and lay with half-closed eyes, hiccoughing, vomiting, and passing urine involuntarily. Four hours after the first injection one and a half pints of the solution were injected. Improvement again followed, which was more lasting. After this the fever ran the ordinary course, a relapse of ten days' duration occurred and he slowly convalesced.—London *Lancet*, January 14.

Spinal Curvature.—Dr. Thos. H. Manley, in the *Canadian Jour. of Med. and Surg.* (February), has a paper bearing on some questions recently discussed in the JOURNAL respecting the etiology and treatment of spinal curvature. Prof. A. M. Phelps had warmly disputed the views of an editorial utterance against mechanic methods of remedying the defect, and Dr. Manley endorses him to a certain extent, holding, however, that he goes too far. Every spinal curvature, even the natural arch, is a deviation due to the disadvantages under which man is imposed by his erect position, and lateral curvatures are also the natural normal result of this condition. Their avoidance must therefore be by mechanic means, and he asks, considering the fact that these deformities are likely to become fixed about puberty, why should we not anticipate them and recommend the wearing of properly adjusted corsets as spinal supports before the weakening dorsal segments begin to give way. According to his experience, if comfortable corseting is possible, the tendency is for the child to outgrow the gross deformity before the bones are permanently set, say at 25 years. Whether these deformities are due to defects in bones, tendons, muscles, etc., is, he holds, of little importance as regards treatment. The deviated column may sometimes be righted if it exists, but prevention is better; arrest or mechanic support are to be resorted to in case this or complete cure is impracticable.

Paludism in Colombia.—An article in the *Revista Méd. de Bogotá*. xxi, No. 233, describes the success of the writer with subcutaneous injections of quinin and antipyrin, āā .20 grams, in malarial infection, an injection each side in severe cases. He has never observed the slightest accident in the course of 250 injections. Three cases that resisted the quinin yielded to ferric ferrocyanid (*prusiato doble de hierro*), and have never suffered from malarial infection during the eight years since. He has observed many cases of paludic pneumonia, yielding to quinin and to nothing else, unmistakably a paludic affection of the lungs in subjects otherwise comparatively healthy. He reduces hypertrophied spleen with a daily subcutaneous injection of strychnin arseniate over the organ, which returns to its normal size in a few weeks. He notes that malarial infection much aggravates the manifestations of syphilis, and that it is more rebellious in syphilitic subjects than in any other. Chronic paludism in his district, Casanare, reduces the subjects to chlorotics, who look as if made of pale yellow wax, blood scarcely tinged with pink, pupils icteric, spleen and liver hypertrophied, staggering gait and occasional slight chills and fever, and who succumb to paludic diarrhea in a few days. He adds that persons arriving from a colder climate become panic-stricken when attacked with malarial infection and rush back to their homes, which is a mistake, as the infection is then more liable to assume a typhoid form. He cites a number of cases of death from peritonitis occurring under these circumstances.

Surgery in the Greco-Turkish War.—As the result of observations in the Greco-Turkish war, Abbot (*Lancet*, Jan. 14 and 21, 1899,) recommends that Roentgen-ray apparatus should always, if possible, be available at that hospital nearest the front in which the wounds can be first properly examined and dealt with. The electricity should be derived from a secondary battery consisting of separate covered cells charged from the nearest town, a man-of-war or other steamer, or by means of a cycle motor. The skiagrams should be taken on positive paper. The apparatus is of no use on the field, where the detection of bullets can only be an incentive to premature exploration. The less wounds are tampered with before satisfactory surroundings are reached the better. All difficult bullets should be removed by a fresh incision and the track ignored. The modern bullet, from its greater penetrating power, will be much less frequently found in the body than its predecessor. It is practically aseptic and there is no urgency for its removal. The orifice of entrance is often exceedingly small. Suppuration is generally due to pieces of clothing carried into the tissues. Superficial septic sinuses should be excised. Wounds of the lung, inflicted by modern bullets, run a comparatively favorable course. Small-bore bullets may bore through a bone without causing any line of fracture whatever, and every and any degree of injury from this up to the most extensive comminution may be met with. Passive movement and massage should be begun early in cases of bullet wound fracture.

The Bacillus of Dysentery.—K. Shiga of Tokio found constantly in the intestines of every case of dysentery examined, a short bacillus with rounded ends, staining with methylene blue, but not with the Gram, moderately motile, no flagellæ, and no spore formation noticed; does not liquefy gelatin; thrives best on an alkalin medium at body temperature. This bacillus was found more or less numerous in thirty-four cases of dysentery, associated with the bacillus coli, with cocci of all kinds, and in five cases with amebæ. It was also found in the walls of the rectum and colon in fresh cadavers, sometimes in the

mesenteric lymphatic glands, never in the spleen or liver. On gelatin the round white pin-head colonies appear granulous and yellowish under the microscope, the center rapidly growing darker. In stab cultures the entire canal is lined with the white colonies. There is no development of gas in sweetened agar. On potato the colonies grow dark yellow. It produces intense cloudiness in bouillon in twenty-four hours, but no scum nor indol reaction. Experiments to obtain immunity and secure an immunizing serum (Kolle's method) were successful. He injected into himself some dead cultures in the same way, producing violent inflammation and an abscess, evidently caused by the toxins, as no live bacilli were injected or found, and he had the satisfaction of finding that his serum possessed pronounced agglutinating and immunizing power.—*Cbl. f. Bact., Paras. u. Inf.*, 1898.

Section of the Sacral Sympathetic for Pelvic Neuralgia.—Vaginism and pelvic neuralgia usually disappear after hysterectomy or castration, and Jaboulay queried whether this might not be due to the multiple sections of the fibers of the sympathetic rather than to the ablation of the organs. Proceeding upon this basis, he treated a case of vaginism preventing complete sexual relations, in a woman of 39 years, by excising three centimeters of the sacral sympathetic chain on the right, and simply dividing the sympathetic on the left. He reached the spot through a transverse incision ten centimeters behind and above the anus, detaching the rectum from the anterior surface of the sacrum, and pushing forward this portion of the intestine with the coccyx. In a second case he detached and pushed forward the rectum through a left parasacral incision, thus tearing the anterior branches of the sacral plexus. In both cases the vaginism disappeared completely by the next day and all vulvovaginal hyperesthesia, but in both cases there was retention of urine, two days in the former and four in the latter. Otherwise there were no inconveniences.—*Semaine Méd.*, January 18.

Etiology and Treatment of Landry's Paralysis.—Dr. C. L. Greene reports (*Phil. Med. Jour.*, Dec. 3, 1898) a case of Landry's paralysis of peculiar features that bear on the questions of its etiology and treatment. The patient was taken ill September 27 and admitted to a hospital on September 30. She had been subject to habitual constipation, and there was a large mass of impacted feces in the colon which required removal by digital and instrumental means. The respiratory muscles became affected on the fifth day, from which time on artificial respiration was employed for a period of forty-one days. There was some slight chance of recovery, but nothing very encouraging, and death occurred on November 12. The postmortem findings showed that the case was one of parenchymatous ascending anterior poliomyelitis, involving the whole length of the spinal cord and extending to the medulla and pons. The process appeared to be central and extravascular in its origin. The special features of this case are the probable etiology, which Dr. Greene considers to be intestinal autointoxication, and the long period during which artificial respiration was kept up in maintaining life. The probability of this disease being caused by a toxin is generally accepted at the present time. That it should sometimes be this peculiar toxin from retained intestinal contents is evidenced by this case, which is of greater interest for that reason. It is to be hoped that not every case of Landry's paralysis has an absolutely unfavorable prognosis, and the one reported by Dr. Greene gives some hint that with treatment by artificial respiration there is at least a possibility that some cases may be saved. The paper is noteworthy on these accounts.

First Help in Cases of Electric Accidents.—1. Break the circuit at once if there be an interrupter close at hand and you know how to use it. If not, lose no time, but proceed to rule 2. 2. Do not touch the man's body with your bare hands, but if India-rubber gloves are not at hand pull him off the cable by his coat tail, or fold your coat or some dry article in two or three thicknesses, and using this as a pad to take hold of the body, pull it away from the circuit and resort to rule 5. 3. If unable to get off, raise, with covered hand, that part of the body which is touching the earth, or one of the poles of the circuit. This will break the circuit, and it will usually be thus possible to get him easily away, and, if so, proceed to rule 5. 4. If still unsuccessful, make another pad, and placing it between the ground and that part of the body in contact with the ground, continue your efforts to detach him. 5. Having pulled him away from the cable, free his neck from clothing, and treat the case as one of drowning, one method being as follows: 6. Open his mouth and taking hold of the front part of the tongue with your fingers (covered with a handkerchief if you have one) draw the tongue forward and gradually let it go back, sixteen times a minute. Be sure that the root of the tongue is acted upon and drawn forward. If the teeth are clenched and you can not get them apart with your fingers, gently separate them with the handle of a pocket knife or by a small piece of wood, cork, etc. 7. Resist the efforts of the bystanders to pour stimulants down his throat.—London *Lancet*.

Character of the Sickness Among Troops in the Philippines.—Many exaggerated rumors about the prevalence and dangerous character of the sickness among our troops at Manila were published in the newspapers up to the time when the attack upon our lines diverted the current of public attention into more active channels. The real condition of affairs may be appreciated by a consideration of the following statement by Brigade Surgeon Samuel O. Potter, concerning the character of the cases in his command. Under date of Dec. 21, 1898, he says: In the brigade as a whole (First Colorado, First Nebraska and First South Dakota) there are 258 cases on the sick report, being 11 per cent. of the total present strength, a decrease of 4 per cent. since my last report. The number of cases by diseases is as follows: Intestinal, 45; pemphigus, 10; malarial, 94; venereal, 89; rheumatism, 18; pulmonary, 13; slight injuries, 23; vaccinia, 9; typhoid, 3; mumps, 3; variola, 1; all others, 50. With the close of the wet season the command is now exposed to the influence of a hot sun upon a soil rich in organic material, as also to the prevailing dust of the streets. Greater care is therefore incumbent upon all commanding officers in regard to the sanitary conditions of the quarters and the grounds in their vicinity. Gen. Irving Hale, the brigade commander, commenting on this, says: The general showing in regard to decrease of sickness in all of the regiments of the brigade is encouraging, especially with reference to venereal disease, which steadily increased to 113 cases on December 10, but had decreased on the 17th to 98, and intestinal troubles, which have decreased from 65 on December 3 to 45 on the 17th. Part of this decrease is due to return of sick to the United States, but there is a general improvement outside of this.

Conditions in the Military Department in Matanzas, Cuba.—Lieut.-Col. Timothy E. Wilcox, chief surgeon of this Department, has made an inspection of the villages; and the conditions which he found are reported as being distressing in the extreme. Nearly every railway station and village in the Province was visited, and the physical condition of the inhabitants, as well as their sanitary surroundings, carefully examined. Over 13,000 were found suffering from paludal fevers and starvation, almost invariably with both; and in nearly every village dying or dead from these causes were seen. In one instance seven had died the day previous to the inspection, and an average of three or four per day seemed to be reached in villages with a population of 1500 to 2000. At Alfonso III a reconcentrado hut was pointed out where over 500 had died last year. The hut was about sixty feet long and fifteen feet wide.

The appearance of the poor wretches who were living was harrowing beyond description. With haggard, bloated and bloodless features, and swollen limbs, often covered with festering ulcers, they tottered along or stood staring wildly into vacancy. Children left fatherless and motherless, covered with scanty rags or absolutely naked, were not infrequently met with. Smallpox existed in four localities. These cases were isolated in "lazarettos" or remote houses, but in one it was found necessary to remove the patients from an old barrack, which was to be destroyed. Vaccin virus and medicines are being supplied as rapidly as possible. By prompt action in affording relief by the issue of rations it is believed that many may be saved. The sanitary arrangements everywhere were faulty in the extreme. Water-supplies are from wells sunk into the coral limestone, or very shallow in the more marshy regions, in all cases only a few yards distant from privy pits, which are never emptied. The medical men met with seemed fully competent. They expressed their regrets for the condition of affairs, and hoped that they would soon be able to effect the removal of these pest producing elements. They were urged to organize health boards and stated they would make every effort to do so. The aggregation of population in villages, with very few homes or fine houses as we see them in the United States, is due to the fact that the people depend upon the sugar estates for means of gaining a livelihood, and as these estates often embrace several thousand acres no room is left for the small proprietor. Wages are low, forty to fifty cents a day, without subsistence. Meat is rarely eaten, owing to the cost, 22 to 35 cents per pound. Sweet potatoes, rice, corn, plantains, breadfruit, bananas, beans, yuca and several other tubers and bulbs furnish the food-supply for the people. Nearly all the towns employ a municipal physician to attend the poor. Hospitals, other than the "lazarettos," and asylums are rare, yet some were found, and these were selected for depots from which medicines are to be issued to the poor.

Contracts not to Practice Medicine.—With conflicting authorities as to the application of the rules for testing the validity of contracts in partial restraint of trade, upon which all agree, the supreme court of Georgia says that it thinks a clear distinction must be taken between the class of cases binding one who has sold out a mercantile or other kind of business, and the good-will therewith connected, not to again engage in that business within a given territory, and that class of cases binding one to desist from the practice of a learned profession. The reason suggested is that a merchant, broker, or shopkeeper might reasonably expect to retain the former patronage of the place of business, while professional skill, experience, and reputation are things which can not be bought or sold, but constitute part of the individuality of the particular person, and die with him. Therefore, the court holds, in the recent case of Rakestraw vs. Lanier, that, in the class of contracts binding one to desist from the practice of a learned profession, such as that of medicine, there should be a reasonable limit as to time, so as to prevent the contract from operating with unnecessary harshness against the person who is to abstain from practicing his profession at a time when so doing could in no way benefit the other contracting party, though such limit is not essential to the validity of a contract not to engage again in a mercantile or other kind of business. A contract in restraint of trade, unlimited as to time, and the enforcement of which literally as made would, in certain contingencies likely to arise, and which must necessarily have been in contemplation of the parties, result in needlessly oppressing one of them, without affording any corresponding benefit or protection to the other, the court further declares, is unreasonable, and should not be enforced. Of this nature, it goes on to state, is a contract for the formation of a medical partnership to continue for twelve months, but which might be dissolved by either of its two members on thirty days' notice to the other, whereby one of them stipulates that, in consideration of the advantages and benefits that will flow to him by reason of the formation of such partnership, he "agrees that, in the event said firm shall at any time hereafter be dissolved, he will not locate or engage in the practice of medicine, surgery or obstetrics" at a named town, or at any place within fifteen miles radius of a specified drug store therein, unless he shall first have obtained the written consent of the other party to the contract.

Act Establishing State Board of Insanity.—One of the Massachusetts Acts of 1898 establishes a State Board of Insanity. The latter is to consist of five members, to be appointed by the governor, with the approval of the council, the term of office to be five years. Two at least of the persons so appointed shall be experts in insanity. The executive officer, to be appointed by the Board, may be a member thereof, but must be a physician and an expert in insanity. The Board may also appoint such agents and subordinate officers as it deems requisite. In its report, among other things, the Board is to present a concise review of the several institutions under its supervision for the year preceding, with such suggestions and recommendations as to the said institutions and as to the general interests of all persons under its supervision throughout the commonwealth as may be deemed expedient. It is also to present in its report information embodying the experience of this country and other countries, regarding the best and most successful methods of caring for such persons as come under its supervision; and it is to encourage scientific investigation by the medical staffs under its supervision, publishing from time to time bulletins and reports of the scientific and clinical work done therein. Moreover, the Board is to have general supervision over the State hospitals and asylums for the insane, and all other institutions and receptacles for insane or feeble-minded patients, either public or private, the Massachusetts Hospital for Epileptics, the Massachusetts Hospital for Dipsomaniacs and Inebriates, the Massachusetts School for the Feeble-minded and the Hospital Cottages for Children, and may, when directed by the governor, assume and exercise the powers of the boards of trustees of the State institutions under its supervision in any matter relating to the management thereof. The Board is to visit and inspect these institutions at least twice a year; is to inspect plans for new buildings; may transfer insane pauper inmates from and to State institutions, and may transfer inmates of private institutions. It is also to act as commissioners of insanity, and all questions as to the sanity of inmates of the penal, reformatory and other institutions of the commonwealth who present indications of insanity shall be referred to it for determination. Patients are to be allowed, subject to the regulations of the Board, to write freely to it, and letters so written shall be forwarded, unopened, by the superintendent or person in charge. Nurses of the institutions are to be employed, as far as practicable, instead of officers of the law, in transferring and taking patients from and to said institutions, a female attendant or nurse to accompany a female patient.

Liability for Services to Pauper.—To recover for medical and surgical services rendered a pauper patient, the case of Taylor vs. Woodbury County was brought. One point that the county tried to establish in defense, was that the township trustees never authorized the rendition of the services. But the supreme court of Iowa holds, Oct. 20, 1898, conceding that the trustees could take no action which would be binding on the municipality except in a formal board meeting, that when the township trustees united, after the services were rendered, in giving a written certificate to the plaintiff, stating the services rendered and their value, and also the fact that the plaintiff acted on their official request, this was a ratification of what had been done; that even if the plaintiff performed the services originally without proper legal sanction, the giving of

this certificate cured any such defect; and that the certificate signed by the trustees was binding on the county, in the absence of fraud. Then, notwithstanding that it has held in several cases that, when the Board of Supervisors employs a competent physician to attend all the poor of the county, the township trustees can not disregard such employment, and engage other physicians to render such services at the expense of the county, the supreme court maintains that this case was by its facts taken out of the rule, because the record here did not show that the physician employed by the Board of Supervisors was under any obligation to attend the poor of this particular township, the contract with him appearing to have been for a limited service on his part. Nor does the court deem it material that the pauper patient was, during the course of his treatment, moved to another township, which was covered by the contract of the physician employed by the board, in order to secure facilities for better care and nursing, that being but an incident of the services rendered. Another defense was that the plaintiff did not personally perform all of the services for which he demanded pay. The fact was that the patient's condition required the performance of a somewhat difficult surgical operation, and that the plaintiff procured another to do this work, he assisting. No claim was made against the county except by the plaintiff. He was responsible to his fellow surgeon. How these facts lent support to the county's refusal to pay, the supreme court declares it can not understand. It says that if the treatment was necessary, and was given by authority, and the amount claimed therefor was reasonable, it can not see what more the county could require as a condition precedent to paying therefor. It was not, as urged by the county, a delegation of authority. The plaintiff performed the services required of him in part through another. Of this the county had no reason to complain.

The Bread-winning Dawn of Professional Life.—According to the *New York Times*' report of the annual banquet of the Society of Medical Jurisprudence, Professor Russell of the New York University Law School, in response to the toast, "Law in Precept and Practice," said in part as follows: "There are 10,000 lawyers in New York City. The three law schools in Manhattan have on the rolls about one thousand seven hundred students preparing for admission to the bar, and, besides these, there are many who read law only in offices, where we may safely say that for every man who has been sworn in as an attorney there is at least one clerk who is an aspirant to the honors of the profession. Why do so many study law, and what becomes of all the lawyers? The head of one of our great universities has urged that hard times have made parents reluctant to set up their sons in business, or start them in hazardous ventures, and an Albany editor has bluntly said that the great prizes of politics attract young men to the legal profession as a gateway to the public service. Doubtless the editor is right." He referred to certain instances of what might impress as a change of career, but the advantages of juristic enrichment were not lost. While a merchant may succeed in certain executive vocations, diplomacy certainly demands the skill of the jurist, but "men of large talents do not need the artificial stimulus of a scholastic régime. No teacher of real greatness ever credits himself with the unusual accomplishments of a student who is a genius. Educational systems exist for the average man. Now, at what age shall the average lawyer or physician become self supporting? That is the practical question. His education will never be finished. Just as a race horse is prepared by his trainer for a great turf event by frequent participation in public races rather than by trials of speed in private, so the really valuable preparation for life's great professional tasks is not in the mimic tribunals of a law school, nor in the solemn stabbing of a cadaver in a laboratory, but by the holding of real briefs in actual litigation, and by the heroic efforts to save the life of a patient. If we should agree to place the age of self-support at 23 or 24 I fear that many changes in our educational system would be demanded." From another and independent source we also refer to an "honor man" at Harvard a year or two ago who summed up his college life as a "study of the rudiments of a dozen kinds of knowledge. When I began to form these alphabets into sentences, college life was over." Again, not to multiply quotations, and certainly not to exploit the short cuts to greatness, we are justified by a mere reference to the address of an American medical teacher to a graduating class: "Very few successful men can expect to perform more than one or two great operations in the course of a long practice. The bulk of work already done has been but a training." "Silver and gold have I none," therefore appears to be not so much a plaint as an explanation. There are days and years of labor which go to earn the means to live. "But," says the moralist, "if our faces are turned toward home, every step under the burden brings us nearer to it."

Philadelphia.

ANDREWS.—Dr. T. Hollingsworth Andrews has been appointed to take charge of the medical corps during the G. A. R celebration to be held in this city in September next.

NICHOLSON.—At the last regular meeting of the Charles B. Penrose Medical Society the principal address was given by Dr. William R. Nicholson, assistant gynecologist at the University Hospital.

BRINTON.—By request, Dr. John H. Brinton, professor of the practice of surgery at the Jefferson Medical College, made an address before the John Ashhurst, Jr., Surgical Society at its last meeting.

SCHOMBERG.—A cablegram has been received by relatives of Dr. Morris I. Schomberg stating that he is en route to New York on the steamer *Berlin*. Dr. Schomberg has for several months past been in the U. S. Army service as assistant-surgeon. For some time he has been at Ponce, Porto Rico.

JEFFERSON MEDICAL COLLEGE.—The new laboratory of the Jefferson Medical College is now being rapidly completed for the reception of students for the coming term. The building adjoins that which has always fronted on 10th Street, but in every respect is more modern and adds greatly to the facilities offered by this time-honored institution. All improvements and necessary apparatus will be supplied for the proper pursuit of medical research, which will further stimulate the zeal by all who manifest an inclination in subjects connected with the different departments of medicine.

LECTURES ON SKIAGRAPHY.—The eleventh lecture in the course given by the Franklin Institute and Y. M. C. A. was delivered by Prof. Arthur Goodspeed of the University of Pennsylvania. Professor Goodspeed, who is one of the pioneers in the special field of skiagraphy, spoke of "Recent Developments in X-Rays and Their Application," describing in detail the gradual improvements made in the necessary apparatus for carrying on the work and its use in surgery. The speaker referred to a recent improvement devised for the detection of a foreign body in the eye or in the cranial vault.

UNIVERSITY OF PENNSYLVANIA MEDICAL ALUMNI.—The University of Pennsylvania medical alumni have announced a semi-annual smoker to be held at the Bourse building on the evening of February 18. It is announced in advance that no one will be called upon for a speech unless the person has previously agreed to make a few remarks. These meetings are always well attended, and being free from all formality, each member can welcome the other with a hearty good-will, and for the time being forget the cares which surround us. These meetings also do a great deal toward the upbuilding of the University, for it draws together the full quota of graduates where they can work for the advancement of their alma mater. Each of the medical colleges here sanctions the movement, and

grave professors and trustees enter into the spirit of the meeting with no little interest and pleasure.

WISTAR INSTITUTE OF ANATOMY. The Wistar Institute of Anatomy is making some rare and valuable collections of skeletons of animals from different parts of the world for the purpose of adding to its vast store of specimens of this character. While the institution is only yet in its infancy there is at present probably as varied material gathered together for the study of comparative anatomy as can be found in any institution in the country. The building is three stories in height, with wide dimensions, and is specially prepared for post-graduate work on all subjects connected with this specific branch of medicine.

AWAITING DECISION OF COURT. The case of Dr. George W. Ludwig against the Medical Council of Pennsylvania for not granting him a certificate to practice medicine in this State, which was referred to in a previous issue of the JOURNAL, remains undecided. The case is of special importance, as it involves the standing of a neighboring medical college, and the certificates granted.

SMALLPOX IN PENNSYLVANIA.—Dr. Benjamin Lee, secretary of the State Board of Health has issued the following proclamation regarding the status of smallpox in Pennsylvania: Since January 25 smallpox has been reported in Pennsylvania as follows: Bedford County (West Providence) 1 case, Liberty 3 cases, Philadelphia 1 case, Blair County 1 case. Total, 6 cases. In Bedford all cases have recovered, and the last house has been disinfected. All mails now go to Bedford without being disinfected. At Altoona the one case reported has fully recovered.

MORTALITY STATISTICS. The number of deaths in this city for the week just closed were 527, a decrease of 42 over that of last week and an increase of 79 over the corresponding period of last year; 161 deaths occurred in children under 5 years of age. The following were the principal causes: apoplexy 17, nephritis 21, cancer 13, tuberculosis 50, diabetes 21, heart disease 47, influenza 2, appendicitis 2, suicide 1.

BEQUEST.—By the will of Emily Roberts, recently deceased, the sum of $500 has been left to the St. Clement's Hospital and Dispensary.

UNIVERSITY DAY.—Hon. Seth Low of Columbia University has been invited to deliver the principal address to students of the University of Pennsylvania on University Day. Mr. Low will be the guest of Provost Harrison and Dr. J. M. DaCosta.

BUSY DAY FOR THE CORONER.—February 18 will be remembered for some time by the coroner of this city, the number of inquests being thirteen. In a great many instances casualties resulted from railroad accidents brought about by the snow-drifts which impede the line of travel.

TETANUS FROM OYSTER SHELLS.—In the case of a patient in this city, 23 years of age, it was found that tetanus had supervened about two weeks after receiving an injury on the hand from opening oyster shells, and a coroner's jury subsequently rendered a verdict to that effect.

THE BLIZZARD IN PHILADELPHIA.—The blizzard which began in this city on February 11, finally culminated in one of the fiercest snow-storms that has fallen here since 1888, the depth averaging eighteen inches on a level, and piling in drifts four or five feet high. Railways and street-cars have been blocked and all manner of business has been at a standstill. The hospitals and dispensaries were practically closed for several days on account of the impossibility of attendance by members of the staff. The ice which covered every street and pavement has run the list of accidents up to a considerable degree, and the sequelæ of grippe has begun anew. The necessaries of every-day life have been very scarce, and at the drug stores a run has been made on all kinds of infant foods and condensed milk. The milk-supply for several days had become exhausted, and as the demand still continued, nothing could be done but to make two pints of milk out of one by the addition of water.

CHANGE OF ADDRESS.

Adams, C. E., from Monterey to Santa Clara, Cal.
Bennett, A., from Biltmore, N. C., to Huntsville, Ala.
Breuer, C. H., from Hallettsville, Texas, to 66 W. 18th St., Chicago.
Cook, A. E., from Aspena, S. D., to Randolph, Neb.
Dalton, W. R., from 477 W. 145th St. to 101 Convent Ave., New York City.
Dyson, E. B., from Burton to Rootstown, Ohio.
Gaughler, R. S., from National Military Home to 219 W. 3d St., Dayton, Ohio.
Haralson, H. H., from Biloxi to Vicksburg, Miss.
Herr, A. W., from Chicago to 66 Michigan St., Cleveland, Ohio.
Hill, E. A., from Pennsboro to West Union, W. Va.
Keck, F. C., from 1416 Castro to Croker Bldg., San Francisco, Cal.
Luburgh, J. M., from Elba to Dodds, Ohio.
McGurty, P. H., from Hume, Ill., to Havre, Miss.
Monroe, J., from Blackfoot to Custer, Idaho.
McIlvaine, H. K., from 14 Market to 14 W. Matilda St., Huntington, Ind.
Stanton, S. C., from 258 Dearborn to 9 Cedar St., Chicago.
Wilson, F. S., from Jarrettown to Jenkentown, Pa.

LETTERS RECEIVED.

Adams, C. E., Monterey, Cal.; Andrews, E., Chicago; American Sports Adv. Agency, New York City; Armstrong, C. T., Webster Grove, Mo.
Babcock, L. C., Philadelphia, Pa.; Boehn, Jas. L., St. Louis, Mo.; Bischoff & Co., C., New York City; Braun, O., Merrill, Wis.; Beeny, F. R., Albany, N. Y.; Bonner, C. A., Dayton, Ohio; Broome, G. W., St. Louis, Mo.; Bennett, W. H., Blaine, Ark.; Ball, Austin, Charleston, S. C.; Bryan, E. H., Glasgow, Ky.
Colgan, J. F. E., Philadelphia, Pa.; Conner, L., Detroit, Mich.; Coberly, L. J., Kansas City, Mo.; Couch, E. E., Milwaukee, Wis.; Chambers, H. F., Plymouth, Mich.; Cole, G. E., Girard, Kan.; Crawford, J. C., Waukon, Iowa; Crothers, T. D., Hartford, Conn.; Crowe, J. W., Washington, D. C.
Dalton, W. R., New York City; Dunning, L. H., (2) Indianapolis, Ind.; Darmack Co., The, Kansas City, Mo.; Durham, C. B., (2) Galveston, Tex.; Baltimore, Md.; Dickinson, J. B., Jersey, Ohio.
Elliott, H. G., New York City; Eshner, A. A., Philadelphia, Pa.
Fort, J. A., North Platte, Neb.; Fenno, H. M., Rochester, N. Y.; Follette, H. A., Chicago.
Gies, A. J., Detroit, Mich.; Gessner, H. B., New Orleans, La.; Gillham, C. W., Warsaw, Ill.; Gorin, J. P., New York City; Greene, C. L., St. Paul, Minn.; Griffiths, J. M., Burlington, Vt.; Gulley & Crawford, Chicago; Grosvenor & Co., J. M., Boston, Mass.
Hummel Adv. Agency, A. L., (2) New York City; Hyde, H. C., Baltimore, Md.; Happel, T. J., Trenton, Tenn.; Hatch, W. G., Prairie City, Ill.; Hill, E. A., West Union, W. Va.; Heard, Jr., T. M., Buffalo, N. Y.; Holmes, Bayard, Chicago; Hektoen, L., (2) Chicago; Hogue, G. L., Chicago; Holleman, P. W., Chicago.
Imperial Granum Co., New Haven, Conn.
Jones, G. L., Austin, Texas; Jelks, J. T., Hot Springs, Ark.
Kelly, C. J., Denver, Col.; Klepinger, J. C., Huron, Ohio; Krotoszyner, M., San Francisco, Cal.
Kehn & Fink, New York City; Lord & Thomas, Chicago.
MacMillan Co., New York City; Maher, J. J. E., New York City; Manley, Thos. H., New York City; Manitou Mineral Water Co., Manitou, Col.; Matteson, D. E., Marion, Ind.; Merrell Chemical Co., W. S., Cincinnati, Ohio; Merck, M. B., Passaic, N. J.; Modern Appliance Co., Middletown, N. Y.; Mitchell, J. F., Chelsea, Mass.; Montgomery, L. H., Chicago; Mogk, W. A., Ann Arbor, Mich.; Moss, V. R., Barboursville, W. Va.; Mulford Co., H. K., Philadelphia, Pa.; Munn, E., Minneapolis, Minn.; Murphy, F. E., Kansas City, Mo.
Nathan, P. W., San Francisco, Cal.
Osler, Wm., Baltimore, Md.; O'Donovan, C., Baltimore, Md.
Pitts, H. C., New Haven, Conn.; Plummer, H. E., (2) Des Moines, Iowa.
Ranney, G. E., Lansing, Mich.; Rawlings, J. A., El Paso, Texas; Reed, G. D., Topeka, Kan.; Riley, W. H., Boulder, Colo.; Ruck, Karl von, Asheville, N. C.; Rundell, Anna S., Flint, Mich.
Saunders, W. B., Philadelphia, Pa.; Schwaemmle, C. H., Battle Creek, Mich.; Seaman, L. L., New York City; Sherman, J. S., Cassopolis, Mich.; Shoblenberger, S., Cincinnati, Ohio; Simplex Lamp Co., Brooklyn, N. Y.; Skeer, Mrs. J. D., Chicago; Smith, J. P., Collinswood, Ohio; Standard Water Still Co., Chicago; Stillwill, H. R., Tyndall, S. D.; Sweeney, G. B., Pittsburg, Pa.
Taylor, H. L., St. Paul, Minn.; Thach, S. D., Decherd, Tenn.; Thompson, E. E., Marengo, Ohio; Trawick, J. D., Nashville, Tenn.; Treat & Co., E. B., New York City.
Vance, A. J., Harrison, Ark.
Wagar, C. P., Toledo, Ohio; Walton, Mrs. R. P., Philadelphia, Pa.; Warner & Co., W. R., Philadelphia, Pa.; Washington, J. N., Chicago; Weeks Drug and Chemical Co., Jackson, Mich.; Welsh, A., Battle Creek, Mich.; Wertenbaker, Wm., Charlottesville, Va.; Winton, H. N., Haywards, Cal.; Wood, Albert, Worcester, Mass.; Woodward, R. C., Augusta, Georgia.

THE PUBLIC SERVICE.

Assignment Order No. 288.

CHIEF SURGEON'S OFFICE,
HEADQUARTER'S SEVENTH ARMY CORPS,
CAMP COLUMBIA, NEAR HAVANA, CUBA, Feb. 3, 1899.

In compliance with General Order No. 68, c. s. 1898, Headquarters Seventh Army Corps, Major J. R. McDill, brigade surgeon U.S.V., is hereby assigned as consulting surgeon and chief of the operating staff in the field, 2th Army Corps, in addition to his present duties as commanding officer of the first division hospital.

(Signed) L. M. MAUS, Lieut.-Colonel,
Chief Surgeon 7th Army Corps.

Approved by command of Major-General Lee.

(Signed) R. E. L. MICHIE,
Assistant Adjutant-General.

A true copy: J. R. KEAN,
Major and chief surgeon U.S.V.

Movements of Navy Medical Officers.—Changes in the medical corps of the U.S. Navy for the week ending Feb. 18, 1899.

Asst.-Surgeon L. L. Young, sick leave extended three months.

Asst.-Surgeon S. H. Payne, detached from the "Marcellus" when put out of commission, and ordered home.

P. A. Surgeon C. P. Kindleberger, relative rank of lieutenant, junior grade, from July 9, 1897.

Asst.-Surgeon J. H. Payne, ordered to temporary duty on the "Franklin," when detached from the "Marcellus."

Asst.-Surgeon D. F. Sughrue, honorably discharged, February 14.